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FINAL REPORT
COLLEGE AND UNIVERSITY FUNDING STUDY

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HOUSE JOINT RESOLUTION NUMBER 58
OF THE 46TH LEGISLATURE

LEGISLATIVE FINANCE COMMITTEE

Helena, Montana
March, 1982

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March 27, 1982

Members of the 47th Legislature:

This is the final report on college and university funding. It is presented in compliance with house joint resolution number fifty eight of the 46th legislature. The charge you gave us in that resolution was to find changes and refinements in the funding formula which would promote efficiency and effectiveness in the Montana university system. We have visited each campus of the system and listened to many ideas and opinions about university funding. The recommendations contained in this report are ours, yet they certainly reflect the advice and consultation we received from students, faculty, and administrators in the university system. We do not pretend perfection, but we hope you will agree with us that this effort represents a positive step forward.

Senator Ed B. Smith, Chairman
Legislative Finance Committee

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Helena, Montana
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PREFACE

This report documents the findings of the Legislative Finance Committee in its study of college and university funding. The study is the result of legislative concern expressed through House Joint Resolution Number Fifty-eight of the Forty-sixth Legislature.

The Legislative Finance Committee is a twelve-member, bipartisan, joint committee of the Senate and the House of Representatives. It was created in 1975 as a permanent committee to oversee, study, and review financial matters of the state that are relevant to issues of policy and statewide importance. The committee appoints and employs the Legislative Fiscal Analyst who provides staff support for the committee. Eight of twelve members of the Legislative Finance Committee are selected from appropriation committees of the Legislature.

ACKNOWLEDGEMENTS

We are indebted to the many faculty, students, and administrators of Montana's colleges and universities for their advice and consultation. We are particularly appreciative of the many hours of thoughtful assistance contributed by Commissioner of Higher Education John Richardson and his staff.

We would like to thank the officials in surrounding states who provided the information we needed to carry out this study.

We are appreciative of the many comments and contributions of our fellow legislators.

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I. INTRODUCTION

Funding for Montana's colleges and universities was a subject of considerable debate in the 46th Legislature. The schools vigorously objected to the "nineteen-to-one formula" used by legislative committees to calculate university appropriations. While the charges against that formula varied, the claimed result was inadquate funding for all the schools. This dissatisfaction, and the legislature's attempt to deal with it, lead to the passage of House Joint Resolution 58 (HJR 58). The resolution, found in Appendix A, cited "... special funding problems of the Montana university system ..." and requested an interim study. The interim study was to find ways to use formulas that "... promote efficiency and effectiveness..."

Following the legislative session, the study requested by HJR 58 was assigned to the Legislative Finance Committee. Work on the study began by determining the objections to the formula in use at that time and changes which might be desirable to incorporate into any new formula. This process, as described in Chapter 3, involved students, faculty, and administrators of the colleges as well as regents, legislators, and the Commissioner of Higher Education. The information gained in this part of the study was used to set the scope and direction.

Specific revisions and new formulas were developed to address the shortcomings of the "nineteen-to-one formula". Surveys of expenditures and work loads of Montana schools as well as schools in other states provided information to help in our deliberations. The committee's staff assisted with analysis of numerous issues. Hearings allowed us to draw on the opinions and expertise of many interested in higher education funding. This process is described in Chapter 4.

The developmental process culminated in a tentative formula proposal in the late summer of 1980. The tentative formula was taken to the six campuses in the fall of 1980 for hearings. Chapter 5 reports several issues raised at these hearings. Weaknesses in the tentative proposal, noted in the hearing process, were corrected in December prior to the legislative session. This led to adoption of a set of formula concepts. These final recommendations, or formula concepts, are reported in Chapter 6.

The final report was not immediately published due to the 47th Legislative Session which began in January. The formula concepts developed in the study were reported in the fiscal analyst's "Budget Analysis" report along with a budget development based on these concepts. The delay in publishing the final report has allowed the opportunity to include the actions taken on the formula by the 47th Legislature in this final report. The actions of the 47th Legislature are the subject of Chapter 7.

Finally, in Chapter 8, we discuss the ongoing study and maintenance needs of the formula. This recognizes a need to have a dynamic formula. As progress in education allows for increased efficiency and effectiveness in the educational process, the formula should be revised to recognize these efficiencies.

Funding for the University System

The history of general fund appropriations for the university system prior to 1979 had been one of moderate growth as illustrated in Table 1.

Table 1
Ten-Year History of University General Fund Appropriation

Fiscal Year	General Fund Appropriations to Six Units[1] (In Millions)	Appropriations Deflated by CPI[4] (In Millions)	FTE[2] Students	Deflated Appropriations Per FTE Student
1970	$18.54	$16.41	23,504	$698
1971	20.58	17.32	24,953	694
1972	20.03	16.24	24,119	673
1973	19.84	15.36	22,662	678
1974	22.66	16.14	21,822	740
1975	23.99	15.54	22,708	684
1976	29.34[3]	17.70	23,621	749
1977	32.01[3]	18.19	23,329	780
1978	34.40	18.26	23,649	772
1979	35.52	17.20	23,264	739

[1] Includes forestry experiment station and bureau of mines since in many years the appropriation for these operations were not separated.

[2] Sources: Office of Commissioner of Higher Education.

[3] Includes portions of regents discretionary fund actually used at units. FY '76 - $1.31 million. FY '77 - $1.32 million.

[4] 1967 = 100.

Since 1970, general fund appropriations for the university units have increased in deflated (real) amounts and amounts per FTE student. In addition to general fund appropriations, the university units receive lesser amounts from a six-mill statewide property tax levy and student tuition and fees. Compared to other major general fund using agencies the university units have not fared poorly as illustrated in Table 2.

Table 2
Indexed General Fund Appropriations for Major State Agencies
(Fiscal 1974 = 100)

Fiscal Year	Universities	SRS	Public Schools	Institutions
1974	100	100	100	100
1975	106	140	109	125
1976	129	201	68	181
1977	141	225	132	180
1978	152	254	143	164
1979	157	348	153	179
1980	178	330	155	184
1981	193	353	162	172

Table 2 is only indicative of general fund and federal revenue sharing appropriations. Because the scope of SRS and institutions in particular have changed over the years, and because of the availability of earmarked and federal funds in some areas, this comparison should be used with caution.

II. THE "NINETEEN-TO-ONE FORMULA"

Formula funding of the state colleges and universities has been a fact of life for many years as have been studies of university funding. The formula in use at the time of HJR 58 is most directly traceable to work done by the Montana Commission on Post-secondary Education whose final report was published in fiscal 1974. In this final report the blue ribbon commission recommended funding for the colleges and universities be "zero based". They recommended that funding formulas be designed to take account of differences in mission and program. They also recommended that faculty salaries be based on parity with comparable institutions.[1]

The 1975 Formula

In response to recommendations of the blue ribbon commission, the Board of Regents presented to the 1975 Legislature a budget formula and budget recommendations based upon operation of the formula. This formula proposed to determine appropriations based upon student-faculty ratios, average faculty salary guidelines, and financial ratios to determine non-faculty costs. The student-faculty ratios were presented by level of instruction. Disciplines were recognized by treating some disciplines as "special formula areas" with corresponding lower student-faculty ratios. Faculty salaries were based upon the average of a selected group of western U.S. colleges and universities.[2]

The Legislative Fiscal Analyst criticized the proposed formula citing: a) student-faculty ratios used in the formula were lower than experienced in similar schools; b) average faculty salaries were too high as schools used to develop those averages were not truely comparable in size to the Montana units; c) identification of "special formula areas" was not consistently treated; d) low cost areas were not taken into account; e) formula supplements were allowed which appeared to have no validity when the formula was used; and f) because of the method of financial ratios used in the formula for areas other than faculty cost the supplements mere "magnified" - increasing requests further.[1]

---

[1] Montana Commission on Post Secondary Education, Final Report December, 1974, P. 45-49.

[2] A more comprehensive description of this formula is found in Appendix B.

The Legislature, in determining appropriations for the six units, reviewed the formula and the criticism raised against it. Their resulting actions were to: 1) use a student-faculty ratio method of determining faculty numbers at a level between that proposed by the Board of Regents and the experience of other western states; 2) use an average faculty salary for determining faculty costs at rates recommended by the fiscal analyst; and 3) adjust other costs incrementally--rejecting the financial ratios method. The proposed and final student-faculty ratios are listed in Table 3.

Table 3
1975-77 Biennium Student-Faculty Ratios

Unit	Regents' Proposal	LFA Survey	Adopted by 44th Legislature
MSU	17.8:1	21:1	20:1
UM	17.9:1	21:1	20:1
EMC	16.0:1	19:1	19:1
WMC	12.6:1	16:1	16:1
NMC	11.5:1	16:1	16:1
MCMST	12.5"1	14:1	14:1

---

[1] A full description of these criticisms can be found in the "Fiscal Analyst's University System Recommendations" from the Office of the Legislative Auditor dated January 7, 1975.

This established use of a formula that evolved into the "nineteen-to-one formula" that HJR 58 addressed.

The 1977 Formula

The 45th Legislature in 1977 again debated the formula set in motion by the 1975 Legislature. The Board of Regents recommended reduction in student-faculty ratios and significant increases in average faculty salaries. The fiscal analyst recommended holding or increasing student-faculty ratios and more conservative increases in average faculty salaries. The legislature, except in the case of Western Montana College adopted the Regents' proposed student-faculty ratios. As you can see in Table 4, the beginning of the "nineteen-to-one formula" was in the 1977 legislative session, (the "nineteen-to-one" being the Board of Regents' requested student-faculty ratio for the larger units).

Table 4
1977-79 Biennium Student-Faculty Ratios

Unit	Adopted by 44th Legislature	Regents Recommend	LFA Recommend	Adopted by 45th Legislature
MSU	20:1	19:1	20:1	19:1
UM	20:1	19:1	20:1	19:1
EMC	19:1	19:1	20:1	19:1
NMC	16:1	16:1	16:1	16:1
WMC	16:1	16:1	17:1	16.6:1
MCMST	14:1	16:1	17:1	16:1

Faculty salaries were increased at the same rate as other state employees rather than the large increase proposed by the Board of Regents. In the 1977 session enrollment changes were first used as a factor in adjusting nonfaculty personal services costs, that is, in addition to incremental adjustments as used in the past.

The 1979 Formula

The 46th Legislature, meeting in 1979, further detailed and refined the formula that had been initiated in 1975. In this version the student-faculty ratio for EMC was lowered from 19:1 to 18.5:1, faculty salaries were given a "catch-up" adjustment to bring them more in line with rates paid at comparable schools in the western United States. Also in this session, student enrollment changes were recognized in determining appropriations for nonfaculty university costs.

The 46th Legislature also passed HJR 58 requiring this study. Therefore, the formula as used in this session represents the culmination of development of the "nineteen-to-one formula". In the following pages the calculation of fiscal 1980 appropriations under the 1979 formula are described in detail.

The "Nineteen-to-One Formula" for Funding Higher Education as Used by the 46th Legislature

The appropriation for each college and university under the "nineteen-to-one formula" was the sum of four components:

1. personal services,
2. operating expenses,
3. equipment, and
4. scholarships and fellowships.

The amount for each of the components was "line item" appropriated for each of the six units of the university system. Each component was in some part related to enrollment and/or previous expenditure levels at the unit. In addition, a number of special adjustments were applied to various expenditure items. Each unit had unique adjustments made to what otherwise would have been a uniform calculation.

Personal Services

A separate calculation of personal services costs (salaries and benefits) was made for each of three groups of employees:

a. faculty,
b. nonfaculty employees in research and operation and maintenance of plant, and
c. other nonfaculty employees.

The differences in calculating personal services costs for each of these groups of employees reflected the different nature of the employees and their relationship to the university.

Faculty Personal Services

Faculty costs were computed by determining the number of faculty and computing an average salary. The multiplication of average salary times number of faculty with the addition of benefits gives total faculty personal services.

The number of faculty allowed was based on the average number of fulltime equivalent (FTE) students in the three previous years and a student-faculty ratio. A fulltime equivalent (FTE) student represents 45 quarter credit hours (30 semester credit hours) of undergraduate courses or 36 quarter credit hours (24 semester credit hours) of graduate courses. Student-faculty ratios used were those requested by the Board of Regents except the Legislature reduced that ratio at Eastern Montana College from the requested 19:1 to 18.5:1. These ratios seemed to reflect program differences and the ability of larger campuses to maintain larger class sizes.

The use of the three previous years' average enrollment buffered the effect of enrollment decline, giving colleges and universities time to make adjustments in faculty and course offering. (If enrollments were declining two percent a year under this system, the appropriation would be based on four percent more students than actual the first year of the biennium and six percent more the second year.) However, this adjustment also buffered the effect of increasing enrollments. Adjustments were made at MSU and MCMST where enrollments were higher in fiscal year 1979 than the three-year average and at UM where the three-year average was not regarded as providing enough of a buffer for its enrollment decline.

Calculations for the number of faculty are illustrated in Table 5.

Table 5
Calculation of Faculty Numbers for Fiscal 1980

	1977, 1978, 1979 Average -Unrestricted FTE Students-				1979-1980 --Academic Year FTE Faculty--		
Unit	Total	Academic Yr.	Summer	Ratio	Formula	Adjustments	Total
EMC	2,975	2,615	360	18.5:1	154.19		154.19
MCMST	1,056	1,040	16	16:1	65.66	2.59[1]	68.25
MSU	9,309	8,835	474	19:1	481.47	8.51[2,1]	489.98
NMC	1,213	1,052	161	16:1	72.39		72.39
UM	7,842	7,336	506	19:1	403.68	8.00[3]	411.68
WMC	602	533	69	16.6:1	34.85		34.85

[1] As enrollment was higher in FY 1979 than the three-year average at MCMST and MSU, these units received faculty for one-half the difference in FTE students between the three-year average and the 1979 actual enrollment. This gave 2.59 and 1.21 FTE faculty to MCMST and MSU, respectively.

[2] MSU received 7.3 FTE faculty for operation of the WAMI program.

[3] UM receives 8.0 FTE faculty to buffer the decline in faculty resulting from enrollment declines.

The term "academic year FTE faculty" as used in the formula means a faculty member employed full time fall, winter, and spring quarters. Summer session faculty are paid at .22 of an academic year FTE faculty rather than the .33 paid for each of the other quarters. Because summer session faculty are paid two-thirds the rate for other quarters, and "academic year FTE faculty" are used in computing faculty personal services costs, summer session student FTE were multiplied by .66. For example, the formula applied to EMC statistics yields [(360 X .66) + 2,615] / 18.5 = 154.19 faculty. A faculty member who teaches all four quarters of the year would be equivalent to 1.22 academic year FTE.

The average faculty salary was based on the amount used by the 1977 Legislature in determining appropriations for fiscal 1979 with a "market" adjustment and pay plan adjustment. The 1977 Legislature based salaries on the average of the Universities of Wyoming, Idaho, North Dakota, South Dakota, Nevada at Reno and Las Vegas; and New Mexico and Utah State Universities. The "market" adjustment was to bring the 1979 base average salary in line with the comparable schools listed above. The pay plan adjustments added the same raises given to all other state employees.

The use of the "market" adjustment was an attempt to keep salaries at a competitive level. This type of adjustment was not used for other university or state employees. The calculation of average faculty salary is illustrated.

1979 Base (HB 145)	$ 19,672	
Market Adjustment	+ 311	
Pay Plan Adjustment	+ 1,147	
1980 Avg. Salary	$ 21,130	at UM and MSU
$21,130 X .90 =	$ 19,017	at EMC, NMC, WMC
[$21,130 X .45] + [$19,017 X .55] =	$ 19,968	at MCMST

Eastern, Northern and Western Montana College faculty-salaries were budgeted at 90 percent of the universities while MCMST was budgeted 45 percent at the university level and 55 percent at the college level. These differences were based upon past practice and generally relate to the salary differentials between Category I and Category IIA schools found by the American Association of University Professors. Engineering courses at MCMST were budgeted at university level.

Faculty personal services were computed by multiplying average faculty salary (net of the state contribution for health insurance) by the number of academic year FTE faculty calculated above and adding the cost of fringe benefits and health insurance. The amounts for fiscal year 1980 are illustrated in Table 6.

Table 6
Calculation of Fiscal Year 1980
Faculty Personal Services

Unit	Academic Yr. FTE Faculty	Avg. Faculty Salary Less $480 Health Ins.	Total Salaries	Insurance[1] & Benefits	Total Faculty Personal Serv
EMC	154.19	$18,537	$ 2,858,220	$ 450,891	$ 3,309,111
MCMST	68.25	19,488	1,330,056	211,271	1,541,327
MSU	489.98	20,650	10,118,087	1,579,221	11,806,739[2]
NMC	72.39	18,537	1,341,893	211,212	1,553,105
UM	411.68	20,650	8,501,192	1,324,793	9,847,885[3]
WMC	34.85	18,537	656,014	101,950	747,964

[1] 12.8% of salaries plus $600 per academic year faculty.

[2] MSU received $109,431 federal nursing capitation in addition to formula amounts.

[3] Includes $21,900 for WICHE.

Personal Services Relating to Research and Operation and Maintenance of Plant

Personal services costs for these areas were based on maintaining the fiscal 1978 FTE level. Special additions were made to recognize new or increased demands. Because of the "fixed" nature of these operations the appropriations did not reflect changing enrollments.

The actual calculation was accomplished by adding fiscal 1979 and 1980 salary increases to fiscal 1978 expenditures and other special adjustments made by the Legislature. This calculation is detailed in Table 7 for operation and maintenance of plant personal services.

Table 7
Calculation of Operation and Maintenance
of Plant Personal Services for Fiscal 1980

Unit[6]	Fiscal 1978 Actual FTE	Fiscal 1978 Actual Personal Services	FY '79 and FY '80 Pay and Benefit Increases	Special Adjustments	FY '80 Personal Services
EMC	29.14	$358,772	$ 59,743	$71,823[2]	$ 490,338
MCMST	20.83	299,812	32,657	14,358[3]	346,827
MSU	73.57	888,371	142,971	---	1,031,342
NMC	20.90[4]	217,129[4]	17,918[4]	9,546[5]	244,593
UM	38.44	553,539	82,532	9,366[1]	645,437

[1] New custodian added at UM 1.0 FTE.

[2] 1.5 FTE added for P. E. complex at EMC - $16,624, 4.87 FTE shifted to state support $55,199.

[3] 1.5 FTE added for new custodians.

[4] NMC calculations based on FY 79 budgeted costs and therefore includes FY 1979 pay increases.

[5] 1.0 FTE custodian added at NMC.

[6] WMC was not treated in a manner comparable to the other units.

Table 8 illustrates the calculation of personal services for research.

Table 8
Calculation of Research Personal Services
for Fiscal 1980

Unit	Fiscal 1978 Actual FTE	Fiscal 1978 Actual Personal Services	FY '79 and FY '80 Pay and Benefit Increases	Special Adjustments	FY '80 Personal Services
MSU	20.44	$365,480	$50,921	$ ---	$416,401
UM	19.18	350,171	43,385	50,000[1]	443,546

[1] To move UM toward equity with MSU after separation of Forestry Conservation and Experiment Station. All figures shown for UM include this station.

Other Nonfaculty Personal Services

Other nonfaculty personal service costs were based upon cost per FTE student experienced in fiscal 1978. Added to this base were pay increases since fiscal year 1978 and adjustments for enrollment changes between 1978 and the fiscal 1977, 1978 and 1979 average. The buffering effect of the three-year average was used for nonfaculty personal services as with faculty. Costs per student were averaged between MSU and UM. A separate calculation was used for WMC.

Table 9
Calculation of Other Nonfaculty Personal Services
for Fiscal 1980

nit	FY '78 Cost	FY '78 FTE Students	Cost Per Student	3-Yr. Avg. FTE Students	Product	Pay and Benefit Increases	Special Adjustments	Total Othe Nonfaculty Pers. Ser
MC	$1,698,988	3,037	559	2,975	$1,663,025	$254,122	---	$1,917,147
CMST	711,056	1,058	672	1,056	709,632	121,451	32,662[3]	863,745
SU	5,987,888	9,424	658[1]	9,309	6,125,322	925,843	17,424[3]	7,068,589
MC	797,431	1,270	628	1,213	761,764	110,637	(27,897)[2]	844,504
M	5,373,870	7,890	658[1]	7,842	5,160,036	781,225	---	5,941,261

[1] MSU and UM costs were averaged to determine 1981 biennium appropriations.

[2] $24,916 data processing costs were shifted from personal services to operating ex- enses, $2,981 other personal services were shifted to operating expenses for student teach ontracts.

[3] Employees added at MSU and MCMST were based on allowing one-half the number of TE students between FY 1979 actual enrollment and the three-year enrollment average.

Table 10 summarizes faculty, operation and maintenance of plant, research, and other nonfaculty personal services, and calculates total personal services for fiscal 1980. Note that Western Montana College, except in the case of faculty, was treated differently.

Table 10
Fiscal 1980 Total Personal Services

Unit	Faculty	Operation and Maintenance of Plant	Research		Other Non-Faculty	FY '80 Total Personal Serv.
EMC	3,309,111	490,338	---		1,917,147	5,716,596
MCMST	1,541,327	346,827	---		863,745	2,751,899
MSU	11,806,739	1,031,342	416,401		7,068,589	20,323,071
NMC	1,553,105	244,593	---		844,504	2,642,202
UM	9,847,885	645,437	443,546		5,941,261	16,878,129
WMC[1]	747,964	---	---	900,353	---	1,648,317

[1] Personal services, other than faculty, for WMC were not computed on the same basis as other units but were individually justified.

Operating Expenses

The calculation of operating expenses for fiscal 1980 was based on fiscal 1978 expenditures and appropriations, enrollment change factors, inflation factors, utilities expense adjustments and adjustments for expanded operation.

An adjustment to fiscal 1978 actual expenses was made to reflect internal reallocations made by units to cover inordinate operating expenses during fiscal 1978. This adjustment returned operating expenses to the fiscal 1978 appropriated base.

Another adjustment recognized the need to realign the operating expense base when enrollments change. One-fourth of the percentage change in enrollment was applied to operating costs. For example if enrollment increased 12 percent, operating costs were raised three percent. If the percentage was less than two percent, no adjustment was made.

An adjustment to utility costs was made to reflect the underestimations of inflation in the 1979 biennium appropriation.

Table 11 illustrates the calculation of operating expenses for fiscal 1980.

Table 11
Calculation of Operating Expenses Fiscal 1980

Unit	FY 1978 Operating Expenses	Adjustment to FY '78 Approp.	Enrollment[1] Change Adjust.	Inflation Adjust.	Utilities Adjust.	Special Adjust.	FY '80 Total Oper. Expen.
EMC	$1,461,356	$ (20,485)	$(29,636)	$263,995	$ 43,426	$ 90,534[4]	$1,809,190
MCMST	510,652	(76,675)	13,670	49,995	21,619	100,105[5,6]	619,366
MSU	3,632,111	(497,400)	---	295,152	142,204	76,300[6]	3,648,367
NMC	421,005	745[7]	(3,112)	36,024	---	108,731[3]	563,393
UM	3,811,779	(151,284)	---	365,496	46,864	57,809[2]	4,130,664
WMC	270,674	---	---	32,544	(11,583)	---	291,635

[1] Enrollment adjustment (-2.1% EMC, +3.15% MCMST, -1.78% NMC).

[2] $56,109 for new buildings and $1,700 for physical therapy programs.

[3] $24,916 shifted from personal services to operating expenses for data processing $42,618 added for computer center; $2,981 shifted from personal services to operating expenses for student teacher contracts and $38,216 added for new buildings.

[4] $64,294 for state assumption of p.e. building costs and $26,240 for new buildings

[5] $5,504 utilities allowance for new buildings.

[6] FY 1979 operating expenditures through February 1979 indicated impending problems at MSU and MCMST. To alleviate these in FY 1980 $76,300 was added at MSU and $94,60 at MCMST.

[7] NMC based partially on FY 1979 budgeted expenditures rather than adjusted FY 1978.

Equipment

Equipment appropriations were based on the average expenditure per FTE student for fiscal 1976, 1977, 1978 and 1979. The average was increased 12.4 percent and multiplied by the three year average FTE enrollment to get the fiscal 1980 figure as shown in Table 12.

Table 12
Fiscal 1980 Equipment Calculations

Unit	----Expenditures Per FTE Student---- 76	77	78	79	Average	Inflated	3-Yr. Avg. FTE Students	Total Equipment
EMC	51	113	60	81	76	$ 85.424	2,975	$ 254,136
MCMST	86	200	129	44	113	127.012	1,056	134,125
MSU	101	124	102	111	105	118.020	9,309	1,098,648
NMC	63	133	64	103	91	102.284	1,213	124,070
UM	62	127	103	113	105	118.020	7,842	928,913[2]
WMC[1]	---	---	---	---	---	---	---	41,831

[1] Equipment at WMC was based on the FY 78 appropriated level per FTE student not the four-year average.

[2] Includes $3,400 equipment for the WICHE program.

Scholarships and Fellowships

The scholarship and fellowship appropriations were based on the amounts per FTE student spent in fiscal 1978. No inflation factor was included because student fees were not increased. Table 13 illustrates the calculation of scholarship and fellowship appropriations.

Table 13
Fiscal 1980 Scholarship and Fellowship Calculations

Unit	----------Fiscal 1978---------- Scholarships & Fellowships	FTE Students	Rate Per FTE Student	FY '77,'78,'79 Average FTE Enrollment	FY '80 Total Scholarships & Fellowships
EMC	$183,575	3,105	$59.12	3,055	$180,612
MCMST	95,160	1,058	89.94	1,056	94,977
MSU	535,168	9,613	55.67	9,492	528,420
NMC	113,374	1,271	89.20	1,213	108,200
UM	557,159	8,012	69.54	7,972	554,373
WMC[1]	---	---	---	---	38,628

[1] Scholarships and fellowships at WMC were based on the FY 1978 appropriated level per FTE student not actual expenditures.

The total current unrestricted appropriation, shown in Table 14, was the sum of the four components: personal services, operating expenses, equipment, and scholarships and fellowships.

Table 14
Total Current Unrestricted Appropriation - Fiscal 1980

Unit	Personal Services	Operating Expenses	Equipment	Scholarships & Fellowships	FY 1980 Total Current Unrestricted
EMC	$ 5,716,596	$1,809,190	$ 254,136	$180,612	$ 7,960,534
MCMST	2,751,899	619,366	134,125	94,977	3,600,367
MSU	20,323,071	3,648,367	1,098,648	528,420	25,598,506
NMC	2,642,202	563,393	124,070	108,200	3,437,865
UM	16,878,129	4,130,664	928,913	554,373	22,492,079
WMC	1,648,317	291,635	41,831	38,628	2,020,411

III. PROBLEMS WITH THE "NINETEEN-TO-ONE FORMULA" -- NEEDED CHANGES

To understand problems the colleges and university perceived with the 19:1 formula we questioned students, faculty, staff, and administration at each of the units.

Campus Interviews

At each of the six campuses we asked the president, chief academic and financial officers, representatives of students and faculty and others selected by the campus president, questions about adequacy and fairness of university funding. We also asked for their suggestions on how university funding should be determined.

Adequacy of Appropriations

There was almost unanimous agreement among students, faculty, and administrators on all units that the fiscal 1980 and 1981 appropriations were inadequate to meet all university needs. Several characterized the inadequacy as extreme, saying appropriations underfund needs by very large amounts. When asked to estimate how much more would be needed most could not provide an estimate, referring instead to specific problems they viewed as resulting from inadequate appropriations.

Since appropriations were "line itemed" for personal services, operating expenses, capital, and scholarships and fellowships at each unit, many commented about inadequacies in these particular areas. Representatives from all campuses cited operating expenses as inadequate. In addition a majority at Northern stated capital funds were inadequate while a majority at MSU felt funds for scholarships and fellowships were inadequate.

Faculty at several campuses stated funds for research and public service were inadequate. Several commented that state funded faculty research should be 20 to 25 percent of instruction appropriations.

Fairness of Current Appropriations

Most individuals felt the appropriations were unfairly distributed, with their own campus receiving too little. When answering about campuses other than their own, MSU was most often mentioned as receiving too little. UM and Eastern were most often mentioned as receiving too much.

The chief formula item represented as causing an unfair distribution was the three-year average enrollment used to develop appropriations. All units except Northern and UM were of the concensus that the three-year average enrollment was not appropriate for budgeting. Several individuals stated that use of the historical base in the formula resulted in unfair allocation of the appropriation.

Special adjustments made for enrollment declines or increases, equalization between MSU and UM, new buildings, and the nonformula treatment of Western were noted by some as a cause of unfair distributions.

Fairness of Appropriation Allocation at Individual Units

There was a strong consensus that each unit fairly distributed the funds on their respective campus.

Problems with the Current Formula

The most often cited problems with the current formula concerned not what it did or how it worked but what it did not do. The single most frequently identified weakness was its failure to recognize program cost differences. Other frequently cited deficiencies were failure to recognize research, public service, student recruitment needs, faculty development, part-time students, campus size, graduate programs and program quality. There was unanimous agreement that the current formula was too simple, and the new formula should recognize more complexities of campus operations.

While most problems with the current formula concerned what it did not do, several specific complaints were counted against what it did do.

1. Use of historical base. Persons on several campuses stated the historical base used in calculation of operating expenses, capital, scholarships and fellowships, and certain nonfaculty personal services was not appropriate. They maintain use of the historical base did not recognize changes that may have occurred in programs or methods and locked-in historical inadequacies.

2. Ninety percent salary calculations. Individuals of Eastern, Western and Northern felt the calculation of average faculty salary at their units should not be based on 90 percent of that allowed at MSU and UM.

3. Summer school "discount". A number of those interviewed felt the calculation of faculty salaries for summer session was not correct. Summer session faculty are paid two-thirds the amount given for a regular academic quarter.

4. Appropriation of indirect cost funds. Several of those interviewed felt the Legislature should not appropriate indirect cost reimbursements generated by private or federally funded programs. They stated such treatment of indirect cost reimbursements creates a disincentive for faculty to engage in research.

5. Enrollment not adequately funded. Persons at MSU and Tech stated that under the three-year average their true anticipated enrollments were not fully funded.

6. Incorrect group of "comparable" schools. Individuals from all campuses stated the group of "comparable" schools selected to determine average faculty salary was not the right one. Tech felt they should be compared to specialized schools of similar role and scope. The other colleges did not want to be tied to the particular group used in the past two sessions. A number of individuals felt faculty salaries should be related to those in the private sector.

What Factors Should be Recognized in a New Formula?

There was almost unanimous agreement that the number of students attending a unit should be an important appropriation determinant, but enrollment should not be the only factor determining future university appropriations. In order of the number of individuals recommending each, the factors to be included in a new formula are discussed.

1. Program cost differences. Persons from all campuses stated program cost differences should be recognized in the appropriation calculation. Many felt the 1980 formula inadequately funded high cost programs. Reasons given for the high cost of certain programs were special equipment needs, mode of instruction, and special facility requirements. Each person interviewed was asked to list high cost programs at their campus. The list by unit is Appendix D.

2. Base or fixed costs. About half the campus people interviewed asked that a new formula recognize more costs as fixed and not subject to enrollment change. In fiscal 1980 and 1981, operation and maintenance of physical plant, organized research, and public service were treated as fixed costs. Suggested areas of fixed costs include all or parts of registration offices, business offices, operating expenses, research, libraries, academic administration, and instruction. For instruction some suggested a

"minimum curriculum" for a college or a minimum size for an instructional department should be a fixed cost.

3. Mode of instruction. A number of representatives felt a formula should recognize mode of instruction. This would look at whether the method of instruction was lecture, lecture and laboratory, laboratory, practicum, etc.

4. Level of instruction. Persons from four campuses stated that levels of instruction should be recognized in a funding formula. Some suggested a detailed breakdown of levels into lower division, upper division, graduate-masters, and graduate-doctoral while others recommended only graduate and undergraduate differentiation. Several stated that the determination of credit hours by level should be based on the level of the student not level of course.

5. Size of unit. Several felt larger units could provide education cheaper because of the possibility of larger classes. They felt a new formula should recognize this. The larger units commented that because of research costs, larger units may not be cheaper.

6. Full utilization of existing facilities. A few individuals stated the formula should encourage full utilization of existing facilities. It should discourage additions of physical facilities at units when unused or under-used physical facilities existed at another unit.

7. Faculty development. A few persons felt a new formula should specifically recognize and fund faculty development. This would include guest lecturers, travel to training sessions, sabbaticals etc.

8. Step increments. A few individuals supported a concept of "step increments" in enrollment driven portions of a formula. Under this system, funding would be fixed over small ranges of enrollment. Adjustments

would only occur as various "steps" or ends of specified ranges were reached.

9. Program development and improvement funds. Several of those interviewed wanted funds set aside for new program development or program improvement. The amount could be based on a percentage of instruction or approval of a package of requests or individual requests. Some stated a "pot" should be given to the Board of Regents for this purpose.

10. Quality. Many of those interviewed want the formula to recognize and fund quality education. There were great differences on what measures quality, however.

11. Part-time enrollment. A few persons felt a new formula should recognize part-time students in a special manner. Chiefly this is of importance in the funding of student services such as the registration office, admission office, financial aid office, and placement office. Most felt using headcount enrollment rather than FTE enrollment would provide the needed special recognition of part-time students.

12. Campus acreage or building square footage. Many of those interviewed stated a new formula should look at campus acreage and building square footage in determining appropriations for operation and maintenance of physical plant. Several also wanted these costs to be weighed by age, condition, or utilization of facilities.

Faculty Salaries

There was a mixed response in terms of the adequacy of current faculty salaries. Unanimously Tech regarded faculty salaries as too low and a major problem to be addressed in a new formula.

Other than adequacy, most persons interviewed felt the methods of calculating average faculty salaries were wrong. Tech generally felt the school was specialized and should have average salaries of similarly specialized schools. Eastern, Northern and Western generally did not like the "90 percent factor" as discussed previously and the two universities generally commented that the group of "comparable" universities were not truly comparable.

In order of the number of individuals recommending the particular method, the proposed calculations of faculty salaries would be:

1. comparison with a group of similar institutions (the current comparison group not being regarded as similar);
2. comparison with salaries of similarly qualified persons in private industry;
3. year-to-year increases based upon the cost of living;
4. the work load of the faculty; and
5. northern representatives suggested a special look at vocational-technical faculty.

Should a Formula Guide On-campus Distribution of Funds?

A small majority felt a funding formula should serve as a guide to the on-campus distribution of appropriations. However, most strongly emphasized this should not be a strict or inflexible guide. Most supported allowing campus administrators flexibility to address problems within the broader guide of the formula.

Would a More Complex Formula Make On-campus Allocations of Appropriations More Difficult?

The majority stated that a more complex formula would not make on-campus allocations more difficult and many felt it would make the process easier.

Continuing Education

A majority of those interviewed favored state support for continuing education; most preferring support at levels similar to undergraduate education. Some, favoring state support, recommended support be at levels less than undergraduate programs and it should be used for basic programs to help people become employed, while enrichment and job improvement courses should be self supporting. Several individuals stated administrative overhead or offices of continuing education should be state supported but actual instruction should be self supporting.

In spite of the fact that a majority felt the state should support continuing education, an even larger majority placed continuing education as lowest on a priority listing of continuing education, undergraduate education, and graduate education. In the priority listing nearly all gave undergraduate programs highest priority.

Student Fees

Feelings about the levels of student fees were mixed with a narrow majority saying both in-state and out-of-state fees were about right. Students themselves almost unanimously rated the fees as appropriate.

A large majority agreed student fees both in-state and out-of-state should be related to the cost of instruction. Several advocated the use of reciprocal tuition agreements with surrounding states and Canada to exempt students from out-of-state fees. Also, several wanted no out-of-state fees charged for summer school.

Intercollegiate Athletics

There was nearly unanimous agreement that the state should support intercollegiate athletics. Most stated the 1980 level of support was not out of line. Several persons said the state should equalize its support of athletics by conference and by sport.

Tenure Policies

A small majority felt the current tenure policies are adequate to deal with future declining enrollments.

More Funds for Higher Education

We asked if the person felt funds should be allocated away from elementary and secondary schools to provide more for higher education. The majority responded that this should not be done. Several mentioned funds could be allocated away from SRS and a few others stated higher taxes should be used to better support higher education.

College and University Budgeting in Other States

Most states use some form of enrollment count in determining or adjusting appropriations to their colleges and universities. The use of formulas and their detail is greatly varied with no two states using identical methods. The most common areas for formula budgets are instruction, libraries, and physical plants.

The following seven states' formulas give a feel for the type and complexities of various budgeting formulas in use.

Colorado

The Colorado formula generates the instruction budget by calculating faculty and support staff salaries, other instruction expenses, and travel. The number of FTE faculty is determined by a series of student-faculty ratios by discipline and level[1]. Average faculty compensation is based on a national comparison of similar schools and an adjustment for Colorado vs. U.S. professional pay differences. Instruction support staff numbers are determined by predetermined ratios of support staff to faculty FTE. "Other instruction expenses" are based on historical expenditures per FTE student with inflationary adjustments. Travel funds are separately calculated allowing a certain amount per FTE faculty based on historical travel using the median of similar schools. Additionally in-state travel was based on the distance from Denver.

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[1] In 1979-80 appropriations were set allowing 98 percent of formula generated FTE faculty.

Colorado generates amounts for library staffing and acquisitions of books by formula. Staffing is determined by a ratio of library staff to student and faculty FTE weighted by course level. A special adjustment adds staff for small schools. Library acquisitions are determined based on the number of volumes purchased in a "base" year with adjustments for enrollment changes, changes in missions and roles, and growth in availability of publications. The formula generated amounts are funded at less than 100 percent.

Physical plant FTE are based on gross square feet with adjustments for intensity of use and economies of scale.

Institutional support is based upon ratios of administrative FTE to faculty FTE with differentials for size and type of school and add-ons for contracts and grants administration.

Student services staffing is based upon providing a "core" staff for a minimum sized school with additional staff based on the numbers of FTE students. A high headcount adjustment is also included

Two other features of budgeting in Colorado are: 1) establishing tuition rates as a percentage of previous years operating costs; and 2) retroactive adjustment of appropraitions based on the relation of actual enrollments to projected enrollments.

Kansas

Kansas makes lesser use of formulas in budgeting for higher education than Colorado.

Currently, Kansas uses campus wide student-faculty ratios to adjust the number of FTE faculty as enrollments change. These ratios coupled with the enrollment changes determine the number of faculty to add or delete. The use of student-faculty ratios to adjust numbers of faculty does not mean that the base is in compliance with any student-faculty ratio. Faculty salaries are adjusted incrementally by the legislature as are other salaries.

Support or classified employees are approved on the basis of one classified for three unclassified (faculty) positions.

Operating expenses are adjusted on the basis of amounts per FTE student. These amounts are multiplied by changes in enrollment to calculate changes in operating expense funding.

The legislature individually reviews new programs and program improvements. Once approved a program generally becomes part of the base in the following year. Some program improvements are one-time efforts.

New Mexico

New Mexico calculates instruction needs by calculating number of faculty, average faculty salary, and other costs. The number of faculty is determined by the use of "faculty productivity ratios". These are the number of student credit hours one FTE faculty is expected to teach. The productivity ratios vary by level, size of school, and discipline. The faculty productivity ratios are based upon historical experience in the state.

Faculty salaries and fringe benefits are increased incrementally from a historical base. The base faculty salary by level, size of school, and discipline comes from a 1975 cost study of actual salary levels. Other instructional expenses per student credit hour are also based on the 1975 cost study. These are increased incrementally with inflation. Other instructional costs are also broken down by level, size of school, and discipline. The ratios per student credit hour are multiplied by credit hours to generate total amounts of support.

Amounts for expenses other than instruction are calculated by applying an adjustment for enrollment changes and inflation to the base year.

South Dakota

The South Dakota legislature calculates college and university support by allowing for cost increases in the current base. Special consideration is given to salary increases, program expansions, utilities for new buildings and accreditation problems. The legislature does not use a formula to calculate any part of the appropriation. The board of regents uses an enrollment driven formula to distribute the appropriated funds to the various campuses.

Texas

The Texas formula generates instruction amounts by computing total faculty salaries and departmental operating expenses. Total faculty salaries are based on the average salary and the numbers of faculty generated by student-faculty ratios for each level and discipline. Together these determine an average salary per credit hour which can be multiplied by projected credit hours to obtain total faculty salaries. Departmental operating expenses are calculated as a percent of faculty salaries.

Amounts for general administration and student services are based on headcount enrollment, amount of sponsored research, and total university appropriations.

Instructional administration is calculated as a percentage of faculty salaries.

Library support is calculated as a fixed amount per student credit hour with a minimum level of total support. Those fixed amounts per student credit hour vary by level of instruction.

Organized research funding is determined as a percentage of faculty salaries adjusted by a complexity factor plus the percentage of base year sponsored research. The complexity factor is weighted to reflect student credit hours by level with special recognition of high research requirements of science and engineering, and low research requirements of education.

Physcial plant services are calculated from building replacement costs, numbers of student and faculty FTE, and average hourly earnings of service workers. A minimum level is established for small schools. Building maintenance is determined as a percentage of building replacement cost. Custodial services are based on gross square feet of building and average hourly wage of service workers. Grounds maintenance is derived from linear feet perimeter of buildings, acres of lawns, headcount enrollment and average hourly wage of service workers.

Washington

Washington determines instruction costs by use of student-faculty ratios, an average faculty salary, and support costs based on the number of faculty. Student-faculty ratios are based on a faculty workload study and recognize course level. Though individual disciplines are not recognized, several disciplines have different student-faculty ratios (engineering, architecture, fisheries and forestry). New programs are treated separately their first biennium of existence. Washington typically funds faculty at less than 100 percent of formula staffing. Average faculty salaries are determined in a comparison with seven states chosen for comparability.

Instructional support is determined from the amount spent per FTE faculty in a base year with inflation adjustments. The base year instruction support staff is determined to be the staffing necessary with 100 percent faculty (ideal) staffing.

The Washington library formula has three elements: resources (books, etc.), staffing, and operating costs. Resources are determined by allowing a basic collection for any institution with additions based on the number of FTE students, FTE faculty, masters degree fields, and doctoral degree fields. An amount equal to five percent of collections is allowed to continue periodicals and serial collections and to purchase newly published materials. The resources formula is often not funded at 100 percent.

Library staffing is split in two areas, public service and technical processing. Public services (the provision of direct service to users) is based on the number of FTE students weighted by level. Technical processing (the internal handling, cataloging, etc. of collections) is based on the size of collections and the number of additions anticipated.

Library operating costs are calculated as a fixed amount per FTE library staff.

The Washington formula calculates operations and maintence of plant through a series of formulas addressing utilities, building maintenance, janitorial and grounds maintenance. Physical plant administration, police, fire, safety, and refuse disposal are not formula budgeted.

Utilities are based on current cost per square foot, degree days and use patterns. Building maintenance is determined as a percent of replacement costs. Janitorial staffing is based on square footage per janitor with supervisory staff allowed on a one to twenty janitors ratio. Janitorial operating expenses are based on amounts per square foot in the most recent year with another amount for equipment replacement. Grounds maintenance staffing is determined by a ratio of acres per FTE groundsmen. Acres of grounds are weighted according to intensity of work required. Supervision is allowed on a 1 to 20 FTE groundsman ratio.

Student services are computed based on amount per "service unit". "Service units" are computed from a number of factors such as: number of applicants weighted (new, continuing, transfer, graduate), active placement files, and similar such activity indicators.

Institutional administration, organized research, and public service are budgeted incrementally.

Wisconsin

Wisconsin includes several features designed specifically to deal with declining enrollments. These include the identification of fixed costs, five year enrollment averaging, and special funding for faculty development.

Instruction costs are determined by student level and discipline in terms of cost per student credit hour. Enrollment projections are averaged for three projected years and two actual years. These projected enrollments are used in conjuntion with costs per student credit hour to obtain total instruction costs. Approximately ten percent of instructional costs are regarded as fixed and enrollment changes do not affect these. These fixed costs represent the salary of department chairmen and their secretaries.

Libraries, instructional computing, and student services are computed as a percentage of instruction costs. Physical plant expenditures are determined on the basis of dollars per square foot. Administration and research are determined on an item by item basis. Utilities are based on paying actual costs. Parts of many programs are regarded as fixed and not subject to change due to enrollment changes.

IV. DEVELOPMENT OF A NEW FORMULA

We began to address concerns of the campuses by attempting to determine in a comparative sense how well Montana supported its colleges and universities. Information from national and regional studies showing expenditures per FTE student, expenditures per capita, and expenditure per $1,000 personal income in the state were found misleading due to errors, inconsistencies, or inappropriateness for our purpose. Some of these problems are discussed in more detail in Appendix E.

Use of Peer Institutions

Because of the many problems with national comparative data we decided to select peer institutions with which we would work closely to obtain good quality data for comparative purposes. By narrowing the comparison to a small number of institutions the previously immense task became reasonable. The use of comparative peer institutions had been accepted by the Board of Regents and the "nineteen-to-one formula". Only the individual peers selected had been a point of disagreement.

The selection of peer institutions was an important step in the formula budgeting process because this group is used to set standards for instructional costs and work load, tuition levels, salary levels as well as comparison of overall levels of state support.

Three peer groups were tentatively selected: 1) a group of institutions that grant bachelors, masters and doctoral degrees for comparison with Montana State and University of Montana; 2) a group of institutions not granting doctoral degrees oriented toward teacher education for comparison with Eastern, Northern and Western; and 3) a group of specialized schools of mines for comparison with Tech. The peer institutions in each case were public institutions with enrollments roughly similar to the comparable Montana schools.

The group of peers was revised later to recognize changes proposed by the Commissioner of Higher Education. The changes: 1) added schools from Washington, Oregon, and Nebraska to the peers; 2) used a separate peer group for Northern and Western and another for Eastern, thus creating four separate peer groups; and 3) added some schools in the peer states that do not offer masters degrees for comparison with Northern and Western.

The resulting peer groups and their 1977-78 enrollments are listed in Table 15.

Table 15
College and University Peers

Institution	FTE Enrollment 77-78
MSU and UM	
Northern Arizona University	10,840
Colorado State University	16,786
Idaho State University	5,961
University of Idaho	6,978
University of Nevada - Las Vegas	5,740
University of Nevada - Reno	6,307
New Mexico State University	10,097
University of New Mexico	17,185
North Dakota State University	7,185
University of North Dakota	8,305
University of Oregon	14,880
Oregon State University	15,039
South Dakota State University	6,182
University of South Dakota	5,511
Utah State University	8,771
Washington State University	15,862
University of Wyoming	8,208
MCMST	
Colorado School of Mines	2,420
South Dakota School of Mines and Technology	1,626
New Mexico Institute of Mining and Technology	826

Institution	FTE Enrollment 77-78
EMC	
Adams State College, Colorado	2,053
University of Colorado, Colorado Springs	2,870
Western State College, Colorado	3,067
Boise State University, Idaho	7,119
Kearney State College, Nebraska	4,800
Eastern New Mexico University	3,348
Minot State College, North Dakota	2,094
Oregon College of Education	2,801
Southern Oregon State College	3,666
Northern State College, South Dakota	2,136
NMC and WMC	
Lewis and Clark State College, Idaho	1,079
Wayne State College, Nebraska	1,988
Chadron State College, Nebraska	1,547
Peru State College, Nebraska	649
New Mexico Highlands University	1,770
Western New Mexico University	1,263
Dickinson State College, North Dakota	968
Mayville State College, North Dakota	693
Valley City State College, North Dakota	868
Eastern Oregon State College	1,357
Oregon Institute of Technology	1,842
Black Hills State College, South Dakota	1,995
Dakota State College, South Dakota	835
Southern Utah State College	1,681

Having selected these peer groups we sent a questionnaire to each institution asking for information about enrollment, student credit hours by discipline and level, faculty productivity by discipline and level, expenditures by program, and expenditure detail for each school or college. (A copy of this questionnaire can be found in Appendix F.) The questionnaire was designed to develop the comparative information about expenditures, work loads, and enrollments that we would need to make a thorough comparison.

Instructional Cost Inventories

The Commissioner of Higher Education formed a formula budget taskforce to gather information about Montana's colleges and universities. This information was needed to carryout this study. A survey was prepared and sent to each of the units in Montana (a copy of this survey can be found in Appendix G). This survey gathered information about faculty productivity by discipline and level and instructional cost by discipline and level.

Two major information gathering surveys, one in-state and one out-of-state, gathered the comparative information needed to view Montana's support of colleges and universities. The committee began to address the problems pointed out in the initial campus survey.

Recognition of Program Cost Differences

The major complaint against the "nineteen-to-one formula" was that it failed to explicitly recognize the differences in cost of instruction in different disciplines or at different levels. It was argued the 19:1 was an average student-faculty ratio, and implied in an average is recognition of high cost and low cost programs. Yet, it was impossible to show in a clear manner this was the case.

Faculty Productivity

The largest element in program cost differences is the faculty productivity, the number of student credit hours an individual faculty member can effectively instruct. This results as faculty compensation is nearly 80 percent of the cost of instruction. It is generally believed graduate courses are taught to smaller groups than introductory and undergraduate courses and that certain laboratory/performance oriented courses allow fewer students per instructor. Therefore, a major portion of the study was directed at finding a suitable method for determining the proper faculty size at each of the units.

Information obtained from the peer questionnaire was used to determine faculty productivity ratios for each discipline and level in actual practice at the peer schools in the 1978-79 year. The medians of the resulting ratios are summarized in Tables 16, 17, and 18. These median ratios show the work load, or faculty productivity of the school that is in the midpoint of schools in the survey. The median was used as the ratios experienced at the peers often show one or two extremes, either extremely high or low productivity ratios that would tend to distort an average. The median productivity ratios were to become the basis for calculation of faculty for the Montana colleges and universities.

Table 16
Median Peer Faculty Productivity Ratios - Universities

Hegis Discipline	Quarter Credit Hours to Generate a FTE Faculty Lower Division	Upper Division	Graduate Division
Agriculture & Natural Resources	1,100	700	400
Architecture & Environ. Design	900	700	400
Biological Sciences	1,200	600	200
Business and Management	1,600	1,000	400
Communications	1,700	700	300
Computer & Infor. Sciences	1,400	800	300
Education	1,000	800	400
Engineering	900	700	300
Fine and Applied Arts	800	400	200
Foreign Language	800	400	200
Health Professions			
Other	800	500	300
Nursing	500	300	300
Home Economics	1,300	600	300
Law	---	---	800
Letters	900	500	300
Library Science	1,000	800	400
Mathmatics	1,600	600	200
Military Science	1,200	700	300
Physical Science	1,200	500	200
Psychology	2,200	800	400
Public Affairs & Services	1,500	900	500
Social Sciences	1,600	700	200
Interdisciplinary	1,200	700	300
Technologies	1,000	700	300

Table 17
Median Peer Faculty Productivity Ratios - Colleges

Hegis Discipline	Quarter Credit Hours to Generate a FTE Faculty Lower Division	 Upper Division	 Graduate Division
Biological Sciences	1,000	400	300
Business and Management	1,200	900	500
Communications	900	800	400
Education	600	900	500
Fine and Applied Arts	700	400	200
Foreign Language	700	300	---
Letters	900	500	300
Library Science	500	900	---
Mathematics	1,200	500	200
Physical Science	900	400	200
Psychology	2,300	900	600
Social Sciences	1,500	700	300
Technologies	500	500	---

Table 18
Median Peer Faculty Productivity Ratios - Mining Schools

Hegis Discipline	Quarter Credit Hours to Generate a FTE Faculty Lower Division	 Upper Division	 Graduate Division
Biological Sciences	600	300	
Business and Management	1,200*	900*	
Communications		1,000*	
Computer and Inform. Sciences	1,000	400	
Education	600	900*	
Engineering	700	700	400*
Fine and Applied Arts	300	300	
Foreign Language	500	300*	
Letters	900	700	
Mathematics	900	600	200
Physical Science	900	500	300
Psychology	2,300*	900*	
Social Sciences	1,000	700*	

* From "Median Peer Faculty Productivity Ratios - Colleges".

Responses that could be used to determine faculty productivity ratios were not received from many of the selected peer institutions. The lack of this data required that for purposes of faculty productivity measures the separate EMC and WMC/NMC groups be consolidated and that the college ratios be used in certain disciplines offered at the mining schools. Table 19 lists the schools from which faculty productivity data was used in each peer group.

Table 19
Peer Schools Used to Calculate Productivity Ratios

MSU & UM Peers

Colorado State University
Idaho State University
University of Idaho
New Mexico State University
University of New Mexico
Oregon State University
University of Oregon
Washington State University

EMC, NMC & WMC Peers

University of Colorado - Colorado Springs
Boise State University - Idaho
New Mexico Highlands University
Western New Mexico University
Eastern New Mexico University
Oregon College of Education
Southern Oregon State College
Oregon Institute of Technology
Eastern Oregon State College

MCMST Peers

New Mexico Institute of Mining and Technology
Colorado School of Mines

The productivity ratio for each discipline and level reflects the median rates experienced by the selected peers. Any individual peer school may be above this median in some areas and below in other areas. The differences among the peers may result from institutional plans to staff certain programs more or less richly or from external forces such as enrollment shifts. Because of factors such as these, the committee decided the Montana units should not be held to peer productivity ratios in individual disciplines and levels. Instead an aggregate productivity ratio can be calculated for each school based upon the peer ratios and the Montana school's distribution of student credit hours by discipline and level.

It would be extremely difficult to project enrollment by discipline and level. Therefore the aggregate productivity ratio must be based on the most recent year for which data is available and updated each biennium.[1] At the end of each year, the Commissioner of Higher Education prepares reports that give a count of student credit hours by discipline and level for each unit. The 1979-80 report would provide the basis for the 1981-83 biennium. The 1981-82 report in turn, would provide the basis for the 1983-85 biennium. This does not preclude the use of projected enrollments for budgeting as this procedure is only used to set the aggregate productivity ratio.

Instructional Department Support

Program cost differences are also evident in the costs of instruction support and equipment required. Again information from the peer study was used to determine the amount of nonfaculty instruction expenditures per credit hour for each discipline. The median cost per credit hour experienced by the peers for each discipline was found. Disciplines with similar costs were grouped under a single rate. The rates per quarter credit hour adjusted for cost increases to fiscal 1981 are found in Table 20. Again because of lack of sufficient data, certain consolidations were made. The college groups and mining schools were grouped together.

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[1] Calculation of an aggregate productivity ratio from peer productivity ratios is illustrated in Table 31 on Page 73.

Table 20
Peer Instructional Departmental Support Expenditures

- Colleges and Mining Schools (FY '81)
  - $3.26 Per Quarter Credit Hour
    - Communications
    - Psychology
  - $3.96 Per Quarter Credit Hour
    - Business and Management
    - Computer and Information Sciences
    - Social Sciences
    - Interdisciplinary
  - $5.84 Per Quarter Credit Hour
    - Fine and Applied Arts
    - Foreign Languages
    - Letters
    - Mathematics
  - $8.58 Per Quarter Credit Hour
    - Biological Sciences
    - Education
    - Library Science
    - Physical Sciences
    - Technologies
    - Engineering
- Universities (FY '81)
  - $5.09 Per Quarter Credit Hour
    - Architecture and Environmental Design
    - Business and Management
    - Communications
    - Psychology
    - Social Sciences
  - $7.16 Per Quarter Credit Hour
    - Computer and Information Sciences
    - Foreign Languages
    - Home Economics
    - Letters
    - Mathematics
    - Public Affairs and Services
    - Interdisciplinary
  - $9.96 Per Quarter Credit Hour
    - Biological Sciences
    - Education
    - Fine and Applied Arts
    - Physical Sciences

$14.98 Per Quarter Credit Hour
Health Professions
Agriculture
Law

$20.95 Per Quarter Credit Hour
Engineering

As was the case with productivity ratios, compliance with amounts in each discipline and level cannot be expected. The instructional department support rates should be applied to the actual student credit hour production for each discipline to calculate total cost. By dividing total cost by actual FTE student enrollment we generate an average instructional department support rate per FTE student. This average rate can be applied to the unit's projected FTE enrollment in developing appropriations. The rate per FTE should be updated biennially to reflect the most recent information available on enrollment by discipline.

Faculty Compensation

In the previous pages, we developed methods of determining numbers of faculty and amounts appropriated for nonfaculty instructional costs. To determine the total instructional program appropriation faculty compensation rates have to be figured.

To determine faculty compensation we again looked to the peer groups. The Montana units had complained that faculty compensation was too low. While stating that compensation should be determined in comparison to similar schools, the Montana schools generally agreed the peer group used for 1979-81 was not appropriate.

The "nineteen-to-one formula" had based faculty compensation on the average of the universities of Wyoming, Idaho, North Dakota, South Dakota, Nevada (Reno and Las Vegas), New Mexico State University, and Utah State University. During the 1979 biennium the average guideline salary was lower than the above units. To remedy this discrepancy, the 1979 Legislature had increased the fiscal 1979 guideline faculty salary by 1.6 percent and to this higher base, applied normal pay increases for the 1981 biennium.

The average salary guidelines were based on school classifications of the American Association of University Professors (AAUP). UM and MSU are included in Category I; EMC, MCMST, NMC, and WMC are in Category IIA. In the western mountain region, Category IIA schools' average faculty salary was 88 percent of the Category I schools' average salary. Montana has been funding the Category IIA schools at 90 percent of Category I because some schools, particularly EMC, have richer staffing patterns than other regional Category IIA schools. MCMST's FTE faculty was weighted 45 percent by Category I and 55 percent by Category IIA. Engineering courses at MCMST were considered Category I.

The Montana schools were unhappy with the peers previously selected for salary comparisons. The colleges were particularly unhappy with the 90 percent calculation used to determine their salary levels.

The diverse and expanded peer groups developed earlier in this report allowed discontinuance of the 90 percent calculation and use of four different peer groups to determine compensation for: 1) MSU and UM, 2) EMC, 3) NMC and WMC, and 4) MCMST.[1] Average compensation of the peer groups could be determined from the AAUP's annual report on faculty compensation.[2] Table 21 shows the 1980 average faculty compensation at each of the peers. The Oregon and Washington schools were not included in the peer groupings for determination of faculty compensation.

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[1] See Chapter 5. The 90 percent method was reinstated during legislative hearings and the four peer groups were not used.

[2] Published in "Academe".

Compensation is used in these comparisons rather than salaries. Compensation includes salaries and benefits. The more comprehensive measure--compensation, takes into account differing benefit packages that would not be recognized if salaries alone were used.

Table 21
Average Faculty Compensation Peer Schools 1980

Montana State University and University of Montana Peers

	Institution	Average Faculty Compensation
1.	University of Nevada - Reno	$27,720
2.	University of Wyoming	27,620
3.	Utah State University	27,160
4.	University of Nevada - Las Vegas	26,530
5.	Northern Arizona University	26,510
6.	University of New Mexico	26,030
7.	University of Idaho	25,930
8.	New Mexico State University	25,370
9.	University of Montana	23,630
10.	Montana State University	23,550
11.	University of North Dakota	23,360
12.	North Dakota State University	23,040
13.	Idaho State University	22,750
14.	University of South Dakota	21,880
15.	South Dakota State University	21,370
	Average Excluding MSU and UM	$25,020

Montana College of Mineral Science and Technology Peers

1.	Colorado School of Mines	$27,600
2.	New Mexico School of Mines	25,760
3.	Montana College of Mineral Science and Technology	24,150
4.	South Dakota School of Mines	23,360
	Average Excluding MCMST	$25,570

	Institution	Average Faculty Compensation
	Western Montana College, Northern Montana College Peers	
1.	Western New Mexico	$23,850
2.	Southern Utah State	23,520
3.	Valley City (North Dakota)	22,580
4.	Mayville State (North Dakota)	21,940
5.	Lewis and Clark (Idaho)	21,900
6.	Northern Montana College	21,530
7.	Western Montana College	21,410
8.	Dickinson State (North Dakota)	21,080
9.	Chadron State (Nebraska)	20,870
10.	Black Hills State (South Dakota)	19,610
11.	Wayne State (Nebraska)	19,120
12.	Peru State (Nebraska)	18,480
13.	Dakota State (South Dakota)	17,760
	Average Excluding NMC and WMC	$20,970
	Eastern Montana College Peers	
1.	Eastern New Mexico Univeristy	$24,890
2.	Adams State College (Colorado)	24,440
3.	Boise State University (Idaho)	23,500
4.	Western State College (Colorado)	22,980
5.	Minot State College (North Dakota)	21,770
6.	Eastern Montana College	21,510*
7.	Kearney State College (Nebraska)	20,550
8.	Northern State College (South Dakota)	19,670
	Average Excluding EMC	$22,540

*EMC not available in AAUP Survey; this figure represents legislative guideline compensation.

Summer School Faculty Compensation

The summer school faculty were paid two-thirds the amount received in a regular academic quarter. This was based on Board of Regents' policy and reflected the shorter length of the summer quarter. The so called "summer school discount" was objected to by many faculty. This was discussed with the campuses and representatives of the Board of Regents. They assured the committee that if the Legislature discontinued the summer school discount in calculating appropriations the salaries of summer school faculty would be adjusted accordingly. In response this discount was to be eliminated.[1]

Historical Base

Use of the historical cost base was a disliked component of the "nineteen-to-one formula". The historical base was used in calculating instructional department support; institutional, academic, and student support; physical plant operation and maintenance; and scholarships and fellowships. In short, for all areas of the budget other than faculty costs, historical funding played a significant role in determining appropriations. The use of peer costs to determine instructional department support costs eliminated the historical base dependence in the instruction program entirely. The availability of the peer institution data allowed the calculation of average expenditures for other areas as well. The major area of university funding dependent on the historical base was institutional, academic, and student support.[2]

Institutional, Academic, and Student Support

Information gathered from the peers was used to develop the average support cost level in each peer group. The cost of intercollegiate athletics was left out of these peer data. Athletic expenditures were treated as a separate formula item. Separate treatment for library funding was discussed, but due to the complexity of the problem and insufficient time, libraries were left as a part of support and as an issue for possible later study. The lack of comprehensive information from a sufficient number of peers required treatment of EMC, NMC, and WMC as a single group. The resulting average level of support expenditures at the peers are shown in Table 22.

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[1] See Chapter 5. This summer school adjustment was reinstated during the 47th Legislature.

[2] See Appendix C for a description of these programs.

Table 22

Average Peer Support[1] Expenditures

Per FTE Student - Fiscal 1979

Peer Group	Rate Per FTE Student
MSU and UM	$ 865
EMC, NMC, WMC	860
MCMST	1,021

[1] Institutional, Academic, and Student Support.

These rates can be used with projected FTE enrollments to generate amounts to be appropriated for support.

Research and Public Services

In the past, research and public service expenditures were based upon historical expenditure levels and special additions approved by the Legislature. Initially discussions included these functions as part of the faculty formula with only major organized research centers, like the Forestry Experiment Station, being budgeted incrementally. Subsequently, it was decided to keep the treatment similar to the previous approach. These programs will be individually presented for review by the Legislature with budgeting based upon incremental increases to recognize cost increases for ongoing efforts and modifications to eliminate or initiate other efforts.

Part-Time Students

Several campuses maintained the "nineteen-to-one formula", since it relied only on full-time equivalent enrollment, failed to recognize the impact of part-time students. If there are significant numbers of part-time students the actual number of individuals attending a school exceeds the FTE enrollment. Headcount enrollment is the number of individuals attending during a quarter. University services that deal individually with students without regard to the number of credit hours the student carries may show a work load more directly related to headcount enrollment than to FTE enrollment. Student services which deal individually with students are:

Student Affairs Administration
Financial Aid Administration
Placement Services
Registration Offices
Admission Offices
Testing and Counseling Services
Intercollegiate Athletics

These programs are available on all campuses in varying degrees. The organization and particular operations differ from campus to campus. The committee looked at these services to determine if headcount enrollments should be used to calculate appropriations.

Student Affairs Administration

This program represents the overall supervision of student services, deans of students, and other minor student service functions. At some units it is difficult to determine the cost or extent of overall administration as it is not separated from other student services on financial reports. No clear pattern of expenditures relating either to FTE or headcount students was evident. There was very little information to evaluate the work load of this area. To some extent costs in this area represent those that are not clearly assignable to any other particular student service.

Registration Office

The major functions of the registration office include:

- maintaining student academic records;
- coordinating and managing the registration of students;
- evaluating academic records of graduating students prior to graduation to insure all requirements for graduation have been met.

Registration and record requirements for part-time students are similar to that for full-time students. The headcount enrollment would give a better account of work load for these functions. In the area of graduation evaluations there is likely a better relationship between FTE students and work load. The number of graduates corresponds more closely to FTE enrollment than headcount enrollment as shown in Table 25 on Page 54.

Admission Office

The major functions of the admission office include:

- evaluating credentials of students applying for admission and approving admission;
- analyzing transcripts of transfer students and calculating transferred course equivalencies;
- providing information to prospective students;
- operating orientation programs for new students.

Most of the work done by this office is done prior to registration and knowledge of whether the students will be full-time or part-time. In fact, a student once admitted may at times attend full-time and at other times attend part-time. Time requirements for admission of full-time or part-time students appear to be similar. A major time consuming function of this office is the evaluation of transfer students' transcripts and approval of course equivalencies. The number of transfer students at the various units conforms better to headcount enrollment than FTE as shown in Table 23.

Table 23
Comparison of Transfer Student Numbers
to FTE and Headcount Enrollment

	Transfer Students From				Units % of MUS Total			Which is Closer Measure?
Unit	In State	Out of State	Foreign	Total	Transfers	Headcount	FTE	
U of M	334	596	17	947	36.9	33.5	33.8	FTE
MSU	307	462	15	784	30.6	39.7	41.1	Headcount
MCMST	85	58	9	152	5.9	5.2	4.9	Headcount
EMC	197	225	3	452	17.6	13.8	12.5	Headcount
NMC	86	41	1	128	5.0	4.3	4.9	FTE
WMC	62	40	0	102	4.0	3.5	2.8	Headcount

In all cases except Northern Montana College and the University of Montana the units' share of headcount enrollment was closer to its share of transfers than was FTE.

The extent of orientation programs and efforts to provide information to prospective students is largely a matter of discretion and available funds. It would be permissable to relate either of these functions to FTE or headcount enrollments.

Financial Aid Administration

The major functions carried out in financial aid administration are:

- evaluating and approving applications for financial aid;
- maintaining financial aid records; and
- preparing financial aid transcripts and reports.

There appears to be general agreement among financial aid officers that the number of loans or total amount of loans and grants is the best indicator of work load. Table 24 shows each unit's fiscal 1978 share of total student financial aid and respective shares of FTE and headcount students.

Table 24
Comparison of Financial Aid Amounts
to FTE and Headcount Enrollment

Unit	% of FY '78 Financial Aids	% of FY '78 FY FTE	% of Fall '77 Headcount	Which Measure is Closer?
U of M	29.8	33.7	33.2	Headcount
MSU	42.1	40.7	39.4	FTE
MCMST	3.8	4.5	4.8	FTE
EMC	13.1	13.1	13.9	FTE
NMC	6.9	5.5	5.3	FTE
WMC	4.3	2.5	3.4	Headcount

As Table 24 indicates, FTE comes closer to total dollars of financial aid in fiscal year 1978 at four of the six units.

Placement

The major functions of placement offices are as follows:

- coordination of on-campus employment interviews;
- operation of career libraries; and
- encouraging employer recruiters to recruit on the campus.

The primary emphasis of this program is the graduating students who are ready to enter the job market. Table 25 shows the various units share of graduates and respective shares of headcount and FTE students for fiscal 1978.

Table 25
Comparison of Degrees and Certificates Awarded
to FTE and Headcount Enrollment

Unit	% of FY '78 MUS Certificates and Awarded Degrees	% of FY '78 MUS FY FTE	% of Fall '77 MUS Headcount	Which Measure is Closer?
U of M	36.4	33.7	33.2	FTE
MSU	40.2	40.7	39.4	FTE
MCMST	3.3	4.5	4.8	FTE
EMC	12.3	13.1	13.9	FTE
NMC	5.4	5.5	5.3	Either
WMC	2.4	2.5	3.4	FTE

As Table 25 indicates FTE is a better representative of degrees awarded than headcount in all units except Northern Montana College.

Testing and Counseling Services

The major functions of testing and counseling services include:

- academic and diagnostic testing;
- academic and personal counseling;
- handicapped and foreign student assistance; and
- special remedial programs.

We were unable to find reliable information concerning the use of these services by part-time students.

Intercollegiate Athletics

These programs appear to be somewhat discretionary. Costs per student relate to how many sports are participated in and the extent of participation rather than numbers of FTE or headcount students. The number of sports participated in varies from unit to unit. The major costs of intercollegiate athletic programs are salaries and travel. Salaries are largely related to the number of sports in which the unit participates. Travel is largely related to the conference and competitive schedule. There does not appear to be a clear relationship between intercollegiate athletic expenditures and either headcount or FTE enrollment. Table 26 lists the intercollegiate sports participated in by each unit.

Table 26
MUS Intercollegiate Athletic Programs

	Unit Participation					
Sport	UM	MSU	EMC	WMC	MCMST	NMC
Mens						
Football	X	X		X	X	
Basketball	X	X	X	X	X	X
Track & Cross Country	X	X	X	X		X
Wrestling	X	X		X		X
Gymnastics			X			
Tennis	X	X	X			
Golf	X		X			
Skiing		X				
Rodeo		X				
Indoor Track	X	X				
Women						
Volleyball	X	X	X	X	X	X
Basketball	X	X	X	X	X	X
Track & Cross Country	X	X	X	X		X
Gymnastics	X	X	X			
Tennis	X	X	X			
Golf			X			
Rodeo		X				
Skiing		X				
Swimming	X					
Indoor Track	X	X				

Summary - Part-Time Students

Registration and admission offices are student services most strongly influenced by headcount enrollment. The workload of financial aid and placement services appear, with the limited data available, to be more closely related to FTE enrollment. Intercollegiate athletics offers an example of discretionary spending levels not highly correspondent with either FTE or headcount enrollment.

We propose that FTE students continue to be the basis for determining appropriations to support programs including student services. In addition an adjustment to recognize the impact of high headcount enrollment on registration and admission offices should be added. The adjustment would budget these two functions on the basis of headcount enrollment.[1]

Fixed Costs - Physical Plants

The physical plant to a large extent represents the major fixed cost component of a college or university. The cost of heating and maintaining the physical plant is largely a function of the size and type of construction of the buildings and grounds that make up the campus. The impacts of inflaton and new buildings must, of course, be recognized in calculating amounts needed for the operation and maintenance of the physical plants.

Fixed costs, those that do not change with enrollment, are evident in research and public service as discussed previously on page 49. In other programs fixed costs, while they may be present, are extremely difficult to define and may not be particularly relevant at current enrollment levels. The major impacts of fixed costs would become apparent when enrollments have fallen substantially and continued existence of the unit comes into question.

Scholarships

State funded scholarships and fellowships under the "nineteen-to-one formula" had been based on the amounts per FTE student expended historically with increases proportionate to enrollment increases. This resulted in locking-in any past inequities. MSU in particular had complained that the scholarships granted to them were disproportionately low.

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[1] The method proposed to the 47th Legislature and used in calculating fiscal 1982 and fiscal 1983 appropriations can be found in Appendix H.

Waivers granted by units of the university system are of three types:

1) mandatory waivers,
2) discretionary waivers, or
3) athletic waivers.

Mandatory Waivers

Mandatory waivers are those scholarships granted based upon a student's status. Table 27 lists the types of mandatory waivers authorized in fiscal year 1981.

Table 27
Mandatory Fee Waivers - FY 1981

1. Indian Students
2. Veterans
3. War Orphans
4. Prisoners of War
5. Senior Citizens
6. Custodial Students
7. High School Honor Scholarship
8. Community College Honor
9. National Merit

The number of scholarships a unit must grant is a product of the number of qualifying students enrolled at the unit. The current method of appropriating scholarships and fellowhips, however, is based on a fee waiver cost per student and does not reflect patterns of student attendance. As a consequence, schools that receive large numers of eligible students, such as Montana State, Eastern and Northern, must spend a disproportionate amount of their scholarship and fellowship allocation on mandatory waivers. Table 28 shows the percentage of total scholarships and fellowships obligated by mandatory waivers for each unit for fiscal year 1981.

Table 28
Mandatory Waivers Percent of Total Scholarships and Fellowships

Montana State University	25.0
University of Montana	13.8
Eastern Montana College	32.3
Northern Montana College	43.5
MT College of Mineral Science & Tech.	13.1
Western Montana College	13.7

Since mandatory waivers are taken "off the top" of the scholarship and fellowship appropriation, the amount remaining for athletic and discretionary waivers is substantially reduced at Montana State University, Eastern, and Northern Montana colleges.

The estimated statewide costs of the mandatory waivers should be appropriated to the Commissioner of Higher Education for distribution to the units based upon where the eligible students enroll. According to this proposal, if 59 percent of the high school honor students enroll at Montana State University, as they did in fiscal 1980, then MSU would apply to the Commissioner's office and receive a larger proportionate share of the money appropriated for waivers. Similarly, if Eastern and Northern enroll 55 percent of the eligible Indian students, then they would receive amounts of money that reflect their disproportionate share.

Discretionary Waivers

Discretionary waivers are waivers of resident and/or nonresident tuition and fees that the colleges and universities grant to recognize superior academic achievement or meritorious service to the institution. Discretionary waivers are typically granted to graduate and advanced honor students, members of the faculty and staff, and to students participating in certain campus activities such as music, drama, or rodeo. In a broad sense, discretionary waivers allow the colleges and universities to encourage selected programs and activities they regard as beneficial to their respective institutions.

Discretionary waivers should be based upon a percentage of estimated student tuition and fee collections. According to this proposal, the units would receive an amount equal to a selected percentage of their tuition and fees for discretionary waivers. This proposal would have the advantage of being fairly simple to calculate, and would at the same time reduce many of the allocation inequities generated by the current method of appropriations.

Athletic Waivers

Athletic waivers are granted for participation in intercollegiate athletics. We propose to appropriate these scholarships based upon conference standards. Equal amounts would be appropriated among the four colleges and the two universities.

Revenues

Once the total needs have been determined from the formula, the revenues that finance it must be determined. These revenues include:

State General Fund
Millage
Tuition and Fees
Indirect Cost Reimbursements
Land Grant Income
Miscellaneous

The committee initially proposed to determine revenues in the same manner as in past biennia with the exception of tuition and fee revenue. Tuition and fee revenue would be related to the cost of instruction.

The Board of Regents are responsible for determining tuition and fee policies; however, the Legislature must make an estimate of funds to be collected and appropriate these funds. Under this recommendation the Legislature would estimate student fee revenues as a portion of the cost of instruction. If the Board of Regents adjusted rates accordingly, the funds appropriated would be available, otherwise the units would have to adjust expenditure levels to remain within available funds.

Enrollment Estimates and Contingency Funding

The committee's method is designed to estimate enrollments and provide contingency funding in such a manner as to:

a. provide a buffer to schools with declining enrollment;

b. fully fund increased enrollment; and

c. encourage university units to take corrective action in the face of declining enrollments.

The previous three-year average method averages the enrollment of the three years prior to the biennium being funded. The figure changes only once every other year. Because of projected significant declines in enrollment, the biennially adjusted three-year average may result in very high costs and severe adjustments between bienniums. These attributes appear to be undesirable.

The proposed method calculates appropriations using a three-year rolling average that is based on projections. It actually rolls in that each year's funding is based on enrollment estimates for the current and previous two years. Also, this alternative provides a method of calculating contingency appropriations for schools that enrolled more students than the projections anticipate.

The Alternative--A Three-Year Rolling Average

Each unit's enrollment is projected for each year of the biennium. For funding purposes the enrollment used is the average of the three year's projection ending with the year for which funding is being calculated. In cases where the projection for the year being funded is higher than the three-year average, the projected enrollment would be used for calculating appropriations. Since an enrollment projection for the year being funded as well as a three-year rolling average figure for that year is available, the appropriation could be consider as having two parts. The amount generated by that year's projection represents the "enrollment justified" budget and the difference between that year's projection and the three-year average represents a "transitional amount" allowed to make the transition from higher enrollment levels to lower levels.

Contingency Fund

A contingency fund would be appropriated to the budget office for distribution to schools if enrollment exceeded the projections. These contingency amounts should be based on the difference between projected and actual enrollment in the most recently completed year. This assumes that the error in projections in the most recently completed prior year is the best estimate of what the error will be for the next year.

The adjustment is the difference between projected and actual enrollment in the previous year less any transition enrollment allowed for the year being funded. The resulting figure would be multiplied times a flat amount per FTE student to obtain the contingency adjustment for enrollments. The flat amount per student would represent the average general fund variable cost associated with an FTE student. Tuition funds resulting from the higher enrollment could be added by budget amendment. The general fund amount would come from the contingency appropriated to the budget office. The calculation is illustrated in Table 29.

Table 29
Calculation of Contingency Appropriation

If the actual enrollment for a school was 7,650 FTE in 1982; projected enrollment had been 7,200; and transition enrollment had been 400; the appropriation from the contingency fund for 1983 would be calculated as follows:

Actual 1982 enrollment	7,650
Projected 1982 enrollment	7,200
Underestimate	450
Allowed for transition in 1983	400
Projected unfunded 1983 FTE	50
Avg. gen fund variable cost per FTE x	$ 2,585
Amount from Contingency Fund	$129,250

The appropriation language of the contingency fund could contain estimated enrollments, transition enrollments, and the average general fund variable cost figures that would be used at each unit in each year. Thus, the contingency adjustment would only depend on unrestricted FTE enrollments certified by the Commissioner of Higher Education to the Budget Director. Once these are certified, the exact amount for each unit would be known and allocated prior to the beginning of the fiscal year. Appendix I gives an example of how the contingency language could be included in the law.

V. HEARINGS ON THE TENTATIVE PROPOSAL

Results of the development work, reported in Chapter 4, were taken to each of the university system campuses for discussion. In these series of hearings the committee listened to students, faculty, administrators, and interested citizens. The comments received cited both support for and disagreement with the tentative decisions. Participants discussed a number of areas which they felt had not yet been addressed or had been inadequately addressed in the tentative proposal. The more general criticisms were 1) the new peer groups selected were not fully representative of their Montana counterpart; 2) fixed costs experienced at the campuses were not adequately recognized and the tentative proposal was too dependent on FTE enrollments; 3) there should be special recognition of libraries in the funding formula; 4) the formula did not address the quality of education; 5) the data base upon which formula figures were based needed to be strengthened; 6) funding recognition should be given to remedial education programs; and 7) disagreement with the faculty productivity ratios for selected disciplines. Several concerns expressed by a majority of the campuses lead to changes in the tentative proposal.

Physical Plant Maintenance

The university units maintained that for various reasons funds had been diverted from physical plant maintenance over the past several years. Because of this diversion the current physical plant expenditure bases were inadequate to properly care for and maintain the facilities. They argued that some amounts should be added to the base to improve the maintenance. The committee agreed that such an adjustment may be appropriate and included it in the final recommendations.

Intercollegiate Athletics

The tentative proposal had suggested that intercollegiate athletics appropriations be equalized among schools participating in the same conference. Several of the units pointed to problems with equalization. Some units had dropped certain sports to generate savings which they did not wish to forego. Some felt the number and type of sports in which they participate should be recognized; others disagreed, stating that sports program offerings should be a matter for campus decision. Others stated it would be inappropriate to equalize state support without looking at the other kinds of support the schools had available for athletic programs. These other kinds of support include student fees, gate receipts, booster club contributions, and the like. MSU felt they had two athletic programs - a men's program and a women's program. Subsequently, the proposal to equalize specific amounts for athletics and athletic fee waivers was abandoned. The athletic expenditures of the peers were included in support and the average support rate per FTE (including amounts for intercollegiate athletics) was used to determine appropriations. In the determination of fee waivers, athletic fee waivers were included with other discretionary waivers.

Enrollment Contingency Fund

The campuses expressed concern that a contingency or other method be available to avoid shortfalls if enrollments exceeded estimates used to establish appropriations. MSU and MCMST in particular, felt that in the past the enrollment increases had created a hardship. The committee agreed that a tightly controlled contingency fund with specific requirements for release of funds may be necessary to alleviate some costs of rapidly rising enrollments.

Indirect Cost Reimbursements

In the past collections of indirect cost reimbursements have been applied fully toward meeting formula generated costs. These revenues from grants represent the amount reimbursed for administration and other costs not directly attributable to an individual grant. The units argued that using all these funds in an enrollment driven formula was inappropriate because it created a disincentive to carry out research, and did not recognize research in the formula for which these funds should be used. They also pointed out that most other states apply less than 100 percent of their indirect cost reimbursements toward funding formulas. The committee agreed that until this matter could be studied more thoroughly less than 100 percent of those revenues would be applied to formula generated costs.

Tuition and Fees

The policy of relating student fees to the cost of instruction was objected to by many on the campuses. They maintained that such a procedure would be unhealthy in that it pits students against faculty. The students would see an increase in faculty salaries as an added expense in which they must participate. We revised our policy to one of treating tuition and fees in terms of the levels at the peers. The average rates at the peer schools should be used to determine the Montana rates.

Research and Public Service

The hearings pointed out that the units did not want a formula for research and public services. The committee agreed that budgeting would be incremental to recognize cost increases and that new or expanded efforts would be individually identified and justified.

An Overprescriptive Formula

There was considerable concern expressed during the campus hearings that the formula would be overprescriptive, leaving too few decisions to local administration. This concern was especially vocal in relation to faculty productivity ratios in disciplines and levels. Those concerned stated that there were a number of reasons why a particular unit might have a different faculty productivity ratio than the peers in a given discipline. Some of these reasons are 1) discipline enrollments may be rapidly expanding or contracting; 2) different disciplines may be emphasized in the role and mission of the unit; 3) different methods of providing a program may necessitate different staffing ratios; 4) enrollment in one unit may represent the discipline as a support area (mathematics in an engineering college) while in another unit the discipline may be a primary area. Those concerned were assured that the committee did not intend the formula to be overprescriptive. In particular, the committee did not anticipate compliance with productivity by level and discipline (an aggregate would be used for each unit); line iteming of personal services, operation and equipment; or removing flexibility that would allow funds to be moved between different areas of the formula. While the formula should not be overprescriptive, the use of funds should parallel the formula to a major extent. The committee would not anticipate major shifts between support, physical plant, fee waivers, and instruction.

Summary

The hearings provided valuable assistance in the development of a funding formula. With the aid of information received during the hearings, several revisions were made. Some proposals, while not leading to immediate changes, pointed out problems that should be addressed in the future.

VI. THE LEGISLATIVE FINANCE COMMITTEE FORMULA

The campus hearings completed the preparation cycle to create a new formula. The ideas, presented and discussed, were now ready for formulation. While the development of an appropriation formula that recognized the significant factors of campus operation was important, it was also important to maintain some flexibility for the legislature to apply the formula. This flexibility was important to allow the formula to be useful and functional in the legislative process where changing priorities and financial constraints must be reckoned with. Because the need for legislative flexibility must be balanced with the need for a formula that clearly defines the factors that influence appropriation levels, the committee chose to recommend a set of formula concepts that describe the framework for appropriation development rather than prescribe a mathematical formula that could easily be too confining.

These concepts describe the factors that will determine appropriations. The factors, the committee believes, recognize in a meaningful way the financial needs and differences of each institution. Specific ratios are not, however, recommended as each succeeding legislature will have come to grips with those problems. The concepts are summarized below:

1) Faculty compensation should be based on the level of peers, or similar institutions. This requires the salary levels of Montana faculty be viewed in the light of similar compensation at similar schools. While a group of peers were selected in the process of the study occasional revision of the members of these peer groups may be necessary and advisable. The particular relationship between the peers and the Montana unit is likewise not specified in these concepts. This leaves the flexibility to set faculty compensation at, below, or above the average of the peers.

2) Summer school faculty salaries should be the same as for other academic quarters.

3) Different disciplines and levels of instruction should be recognized in determining the number of faculty and other instructional costs. This recognition is achieved through the use of peer productivity ratios by level and discipline and peer instructional department support rates by discipline. In order to provide the colleges and universities with sufficient flexibility, productivity ratios should be consolidated into an aggregate ratio that reflects the enrollments by discipline and level at the individual unit. This aggregate ratio should be used for determining appropriations. A particular set of productivity ratios or support rates is not recommended as it may be necessary from time to time to restudy and revise the values found in this study. Likewise, any change in the peer group could lead to changes in productivity ratios and support rates.

4) Appropriations for organized research and public service should be based on past levels of expenditure and performance. These programs should be unaffected by enrollment changes.

5) Academic, institutional and student support costs should be based upon the similar expenditures at peer colleges and universities. The specific relation to the peer group is not specified. This leaves the legislature flexibility to fund at, above, or below the average level of the peers.

6) An adjustment should be added to recognize the impact of part-time students on the campuses. This adjustment should recognize that primarily registration and admission offices are affected by part-time students in such a manner as not to be adequately acknowledged in an FTE enrollment formula.

7) A one time addition to the physical plant expenditures base should be made. This maintenance improvement fund will be permanently incorporated into the physical plant expenditure base of each unit. The allocation of this one time base adjustment should be determined by a plan submitted to the 47th Legislature by the Commissioner of Higher Education. In future years, physical plant appropriations should be determined by the expenditure level in the base year, cost adjustments, and added amounts for new space.

8) Mandatory fee waivers, as defined on page 57, should be appropriated to the Commissioner of Higher Education for distribution to the units. The distribution should be based upon the eligible students enrolled at each unit.

9) Discretionary fee waivers, as defined on page 58, should be based on tuition and fee revenues of each unit. The percentage of tuition and fee revenues to be waived should be equal at the universities and at the colleges. Different rates may be applied to in-state and out-of-state tuition and fee revenues.

10) In order to provide a buffer against sudden enrollment declines, schools experiencing an enrollment decline should be budgeted on the basis of three-year moving average enrollment. This will allow the unit to make a smoother transition to the reduced levels. The average will be calculated from actual and estimated enrollments for a three-year period ending with the year being appropriated. Schools with increasing enrollments should be budgeted on the basis of projected enrollment.

11) A contingency fund should be set aside to fund enrollments in excess of those estimated at the time appropriations are determined. This will provide additional funds if enrollment exceeds estimates significantly.

The contingency fund should be appropriated to the Governor's budget office for administration. Specific, objective criteria should be specified for release of contingency amounts to avoid inappropriate expenditure of these funds.

12) Student tuition and fee rates should be related to peer tuition and fee charges. In projecting revenue from tuition and fees for each biennium a study of tuition rates at peer institutions will be carried out. Results of this survey will be used in setting tuition and fees in Montana for the purpose of calculating appropriations. The particular relationship between Montana and the peers is not specified as the rate may be set at, above, or below the average of the peers. This is to avoid interferance with the authority of the Board of Regents to establish tuition and fee charges in each of the units. We hope that the Board will take account of these concepts in establishing the actual rates.

13) A portion of indirect cost reimbursements should not be applied toward funding formula generated budgets. The committee recommends 15 percent be disregarded until the question can be studied further and a clear rationale for disregard determined.

VII. THE 47TH LEGISLATURE

Work on the study of college and university funding was completed immediately prior to the opening of the 47th Legislature. The concepts adopted as a result of the study were applied in the development of the "Budget Analysis" prepared by our staff. In this report the legislative fiscal analyst used the specific factors discussed in the following paragraphs.

Enrollment

Enrollments were estimated for 1981, 1982, and 1983 in a joint effort with the Commissioner of Higher Education. The higher of the three-year moving average or projected enrollments at each unit was used to calculate appropriations. Revenue projections were based only on projected enrollments.

When the three-year averages were used more students than projected were funded. These extra students were termed "transitional enrollments". They generate appropriations above what would have resulted based on yearly enrollment projections. The added funds are to aid in transition to the lower operating levels. Table 30 illustrates projected, three-year average, and transitional enrollments.

Table 30
1983 Biennium Enrollment Projections - "Budget Analysis"

Unit	1980-82 Average	1982 Projected	1982 Transition Enrollment	1981-83 Average	1983 Projected	1983 Transition Enrollment
MSU	9,964	9,926	38	9,892	9,475	417
UM	8,099	8,133	--	8,142	7,971	171
EMC	3,043	3,070	--	3,040	2,900	140
NMC	1,319	1,329	--	1,332	1,275	57
WMC	747	750	--	749	700	49
MCMST	1,417	1,525	--	1,518	1,550	--
Total Transition Enrollment			38			834

Faculty Numbers

The number of faculty was determined by use of aggregate faculty productivity ratios. These were based on peer productivity (listed in Tables 16, 17, and 18) and actual student credit hours in the most recent year for which data was available. The calculation of the aggregate productivity ratio is illustrated in Table 31 for the University of Montana.

Table 31
Calculation of Aggregate Student-Faculty Ratio for UM

	----Lower Division----			----Upper Division----			--------Graduate--------		
Discipline	Credit Hours	Peer Prod. Ratio	FTE Faculty	Credit Hours	Peer Prod. Ratio	FTE Faculty	Credit Hours	Peer Prod. Ratio	FTE Faculty
Agric. & Natural Resources	5,089	1,100	4.63	11,277	700	16.11	1,070	400	2.68
Biological Sciences	12,057	1,200	10.05	8,289	600	13.82	1,552	200	7.76
Business & Management	9,142	1,600	5.71	22,150	1,000	22.15	1,534	400	3.84
Communications	1,827	1,700	1.07	1,989	700	2.84	99	300	.33
Computer & Infor. Sciences	6,887	1,400	4.92	817	800	1.02	---	300	---
Education	13,992	1,000	13.99	19,562	800	24.45	4,440	400	11.10
Fine & Applied Arts	12,492	800	15.62	6,394	400	15.98	1,297	200	6.48
Foreign Language	11,703	800	14.63	2,107	400	5.27	219	200	1.10
Health Professions	3,887	800	4.86	5,058	500	10.12	2,329	300	7.76
Home Economics	3,151	1,300	2.42	1,433	600	2.39	3	300	.01
Law	---	---	---	---	---	---	10,019	800	12.52
Letters	21,080	900	23.42	9,313	500	18.63	1,639	300	5.46
Mathematics	19,645	1,600	12.28	1,175	600	1.96	425	200	2.12
Physical Science	17,542	1,200	14.62	3,262	500	6.52	1,210	200	6.05
Psychology	8,126	2,200	3.69	3,811	800	4.76	1,860	400	4.65
Public Affairs & Services	264	1,500	.18	1,045	900	1.16	---	500	---
Social Sciences	36,808	1,600	23.00	25,817	700	36.88	2,296	200	11.48
Interdisciplinary	2,901	1,200	2.42	611	700	.87	242	300	.81
Total	186,593		157.51	124,110		184.93	30,234		84.15
	÷45			÷45			÷36		
FTE Students	4,146.5			2,758			839.8		

$$\frac{\text{FTE Students}}{\text{FTE Faculty}} = \frac{4,146.5 + 2,758 + 839.8}{157.51 + 184.93 + 84.15} = \frac{7,744.3}{426.59} = \frac{18.15}{1}$$

Faculty Compensation

The level of faculty compensation is the peer averages for fiscal 1980 as reported in Table 21 which were increased by the pay raises given Montana units for fiscal 1981 by the 1979 Legislature. These totals were increased nine percent in fiscal 1982 and another nine percent in fiscal 1983.

Support

The instructional department support and the institutional, academic, and student support rates were calculated based upon the peer rates reported in Tables 20 and 22. These rates were increased to recognize cost increases and multiplied by projected enrollments to generate total recommendations. Table 32 lists the resulting rates for each unit.

Table 32
Support Rates Per FY FTE Student Recommended
in "Budget Analysis"

	Instructional Department Support Rates		Institutional, Academic and Student Support Rates	
Unit	1982	1983	1982	1983
MSU	$469.56	$510.70	$1,103	$1,200
UM	399.51	434.50	1,103	1,200
EMC	310.17	337.34	1,096	1,192
NMC	388.07	422.07	1,096	1,192
WMC	340.96	370.82	1,096	1,192
MCMST	327.02	355.67	1,303	1,417

Part-Time Student Adjustment

An adjustment was added to recognize part-time students. It was calculated at one-third of one percent of faculty compensation for each five percent headcount enrollment exceeds FTE enrollment. The procedure is explained in Appendix H. The amount of adjustment is shown in Table 33.

Table 33
Part-Time Student Adjustment from "Budget Analysis"

Unit	% Headcount Exceed FTE	Number of 5% Increments	Adjustment* Percentage	1982 Adjustment
EMC	21.79	4	1.33	$57,517
WMC	17.88	3	1.00	10,360
MCMST	11.10	2	.67	17,062

*Adjustment percentage is 1/3 of 1% for each 5% increment.

Research and Public Service

These programs were based upon past expenditure levels and program changes made in previous legislatures. Amounts were added to recognize inflation.

Physical Plant

Physical plant recommendations were based upon past expenditures adjusted for inflation and additional space. One million dollars were recommended to be added to the physical plant base. The amount calculated was based upon building square footage on each campus and national average expenditure per square foot for maintainence, custodial services, and groundskeeping.

Fee Waivers

Discretionary fee waivers were equalized for all units at 18.45 percent of out-of-state fees and 5.75 percent of in-state fees. This continued the statewide averages. Mandatory fee waivers were recommended to go to the Commissioner of Higher Education for distribution based on enrollment of eligible recipients. Amounts were based on the previous numbers of waivers.

Revenue

Tuition and fee revenues were based upon increases announced by the Board of Regents. These increases were to bring Montana's tuition and fees to the average of the peers.

Fifteen percent of projected indirect cost reimbursements were excluded from meeting formula generated costs.

The appropriation recommendation resulting from these calculations was a 42.2 percent increase of all funds over the 1981 biennium and a 54.2 percent increase in general fund appropriations.

Campus Allocation of Formula Generated Amounts

The legislative subcommittee began the appropriation process by requesting the campuses to submit an allocation of the formula generated amounts reported in the "Budget Analysis".[1] This allocation would detail expenditures by program and discuss additions resulting from the added funds.

When these allocations were received, the subcommittee was armed with the Governor's budgets, the Board of Regents' request, and the units' allocations of formula generated figures. The Board of Regents' recommendations were based upon the formula concepts, but differences in specific factors from those reported in the "Budget Analysis" were requested. These differences are summarized as follows:

- faculty compensation increases of 12 percent for fiscal 1982 and 11 percent for fiscal 1983;
- salaries for EMC, NMC, and WMC were requested to be 93 percent of MSU and UM peers average salaries (instead of using the peer average salaries from EMC and NMC/WMC peer groups);

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[1] A copy of the request for this allocation is found in Appendix J.

- larger inflation cost adjustments were used;
- funds for specific expansions in addition to formula generated amounts were requested. The additions include:
    - a) computers and related equipment,
    - b) new academic programs or special support for current programs,
    - c) instructional equipment,
    - d) increased research funding,
    - e) library acquisitions,
    - f) library networking.

The Governor's recommendation was not based upon formula concepts and reflected the more traditional incremental budgeting approach. This recommendation was derived from actual expenditures in fiscal 1980 with adjustments for enrollment increases, inflation, and budget modifications for new or expanded activities. The new or expanded activities funded in the executive budget included the following:

- library acquisitions and staffing;
- expanded research funding;
- an operational base adjustment;
- computers and related equipment;
- funds for maintenance of new space.

Employee pay increases were not included in agency budgets by the Governor's budget office.

Legislative Changes

Through the hearings process and legislative action, the appropriation developed by the legislature to a great extent used concepts adopted in the committee's study. There were a number of revisions which are discussed briefly.

Faculty Compensation

The study adopted the concept that faculty compensation be based upon similar compensation in peer units. The Legislature chose to increase guideline rates established in the previous session by amounts granted to all state employees in HB 840. In addition, a new concept called "Critical Area Adjustments" was added. These adjustments were additional amounts appropriated to each of the units to "... be expended in those academic disciplines where difficulty is experienced recruiting or retaining faculty due to external market conditions."[1]

Summer School Adjustment

In the study, the concept that summer quarter salaries be the same as salaries for other academic quarters was adopted. The Legislature, however, continued the current Board of Regents' policy of paying summer school faculty at two-thirds the rate for other academic quarters.[2]

Contingency Fund

In the study, the committee concluded that a contingency fund should be set aside to provide additional support to units if enrollments exceeded those used for determining appropriations. The legislature did not adopt or provide an enrollment contingency fund. A contingency fund to compensate the units if projected faculty vacancy savings were not realized was provided by the legislature.

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[1] HB 500 of 47th Legislative Session.

[2] The Legislature initially adopted the concept of full rate for summer school; however, as the result of a joint conference on the appropriations act, the two-thirds adjustment was reinstated.

Nonformula Add-Ons

The Legislature appropriated funds for a number of budget modifications requested by the Governor and/or the Board of Regents. These modifications were granted in addition to the formula generated amounts for support.

Funds were appropriated to each of the units to join the Washington library network. This is a computerized network for interlibrary loan and shared cataloging. New computer equipment was provided for three of the units.

Funds were added to provide for payment to the legislative auditor for the cost of auditing the units financial activities.

Fee Waivers

The committee had adopted the concept of appropriating mandatory fee waivers to the Commissioner of Higher Education and equalizing discretionary waivers among the six units. The Legislature decided to allow the Commissioner of Higher Education to bring the committee a plan for the distribution of all fee waivers within the total amount suggested in the "Budget Analysis". These amounts were then appropriated to the individual units.

Support Appropriation Phase-In

The legislature decided to "phase-in" amounts appropriated for academic, institutional and student support to the level of peers as reported in the "Budget Analysis. This phase-in allowed 90 percent of the peer level in fiscal 1982 and 97 percent in fiscal 1983.

VIII. SUMMARY AND CONCLUSIONS

This college and university funding study addresses the issues the committee set out to discover. These issues are, as HJR 58 points out, "... changes and refinements in funding formulas that would promote efficiency and effectiveness in the Montana University System .." The effectiveness and efficiency of the system is promoted through a formula that recognizes the significant financial needs of the schools as well as the uniqueness of each unit. Specific funding needs are recognized through concepts that individually determine:

- faculty numbers;
- faculty compensation;
- instructional support;
- institutional, academic, and student support;
- part-time enrollment adjustment;
- mandatory fee waivers;
- discretionary fee waivers;
- tuition and fee rates;
- physical plant;
- new facilities;
- maintenance improvement; and
- treatment of indirect cost reimbursements.

The uniqueness of each unit is recognized by several concepts:

- Use of separate peer instituiton groups for different units of the university system; and
- faculty numbers determined by discipline and levels of instruction actually experienced at each unit.

Efficiency is promoted by using a formula that relates funding to the demand for services. As enrollments change or the demand of students shift to different programs, funding will be affected accordingly. In areas not related to student enrollment such as physical plant, research, and public service, legislative scrutiny will maintain efficiency.

The formula concepts outlined in this report establish the framework for budget development and review. They point out the factors that will be reviewed as well as the basis of review. In this manner the formula provides some stability to the budgeting process and allows the participants to plan beyond the current appropriated amounts. For example, with assumptions about inflation and enrollment changes one can look ahead several years to determine what type of action will be required. The need for such long range planning in the face of anticipated enrollment declines was pointed out in a letter of intent sent to the Board of Regents from the Chairman of the Senate Finance and Claims Committee during the 47th Legislative Session (see Appendix K). In this letter, Senator Himsl requests the university system to plan for the anticipated enrollment decline, and budget reductions that this formula will bring about, by anticipating problems and bringing these potential problems to the attention of the legislature.

Ongoing Work to Support Formula

While the formula study is a positive step it is not the end of work that needs to be done. The time and information constraints that we faced in this study have not allowed us to address all issues that need attention. This committee will continue to study and review funding of higher education. Several of the issues that need further attention are the following:

1) the use of indirect cost reimbursements;

2) special library funding problems;

3) the impact of Title IX and funding for women's athletics; and

4) the determination of quality measures and incentives.

The formula, in addition to the special areas of concern noted above, requires several studies or surveys to be repeated on a recurring basis., These surveys are 1) salary surveys, 2) tuition and fee surveys, 3) faculty productivity studies and surveys, and 4) support expenditure studies and surveys.

The salary and tuition surveys can easily be repeated each biennium. The faculty productivity and support expenditure surveys, however, require an extensive committment of time and care to insure that we obtain accurate and useful information. Because of this effort required these surveys may only be necessary every six years.

The intent of this committee is that this formula be useable for an extended period of time. Through added studies mentioned above, annual monitoring of fund use reports, and recurring surveys, we hope the formula will be made dynamic. That as times and conditions change, the formula will be adequate. This study, which we hope will promote efficiency and effectiveness in the university system, requires the support and efforts of the university system to truely make the system more effective and efficient.

APPENDIX A

A JOINT RESOLUTION OF THE SENATE AND THE HOUSE OF REPRESENTATIVES OF THE STATE OF MONTANA REQUESTING THE LEGISLATIVE COMMITTEE ON PRIORITIES TO APPOINT A JOINT COMMITTEE TO CONDUCT AN INTERIM STUDY ON THE FUNDING OF THE MONTANA UNIVERSITY SYSTEM AND COMMUNITY COLLEGE DISTRICTS.

WHEREAS, the Montana Legislature recognizes the special funding problems of the Montana university system and the community college districts; and

WHEREAS, the existing formulas for funding the six units of the university system and the community college districts are in need of critical reevaluation and refinement; and

WHEREAS, any reevaluation of funding for the university system or community college districts should involve the participation of all parties with an interest in higher education.

NOW, THEREFORE, BE IT RESOLVED BY THE SENATE AND THE HOUSE OF REPRESENTATIVES OF THE STATE OF MONTANA:

That the Legislative Committee on Priorities is requested to appoint a joint committee to conduct an interim study and present recommendations and proposed legislation to the 47th Legislature concerning changes and refinements in funding formulas that would promote efficiency and effectiveness in the Montana university system and among the community college districts.

BE IT FURTHER RESOLVED, that the Commissioner of Higher

Education, the coordinator of community college districts, community college district trustees, the administration, faculty, and students of the units of the Montana university system and the community colleges, the office of the Governor, and the staff of the Legislative Fiscal Analyst are requested to make available to the study committee the resources of their respective offices.

APPENDIX B

BOARD OF REGENTS OF HIGHER EDUCATION
FORMULA BUDGET REQUEST
FOR YEARS 1975 - 1977

INTRODUCTION

The budget request for the next biennium will be based on the zero-base formula budget concept in determining the amount required for the six institutions' enrollment-related instructional programs. The zero-base formula approach differs from the more commonly used incremental budgeting methods in that each institution must justify its current level of expenditures before a decision is made as to how much additional funding will be required.(1) The zero-base funding concept more appropriately addresses problems of inequity in the allocation of resources among several institutions. It is designed to take into consideration student enrollment by level and cost differentiation by discipline starting from an expenditure base of zero.

The formula component factors are derived from institutional cost comparisons and financial ratio analysis provided by several comparable institutions within the United States and the Rocky Mountain Region. However, the reader should be cautioned that many of the formula components are based on the assumption that the colleges and universities are operating in a "long-run equilibrium" condition. This means that the comparative institutions have experienced somewhat stable enrollment patterns and stable funding patterns for a relatively long period of time. Institutions that have been faced with either severe enrollment declines or material changes in their enrollment mix as to level and academic discipline can be trapped by "short run disequilibrium" problems.

For instance, if a major portion of an institution's faculty are tenured at the senior ranks the institution cannot respond to enrollment declines without going through the lengthy rigors of due process for faculty dismissal.

This situation can exist where an institution's enrollment appears stable--but where a major student enrollment shift among the academic disciplines has occured. Such an institution will have difficulty staying within the financial norms of a formula budget. Enrollment declines accompanied with enrollment shifts among disciplines can create a situation where the institution must hire additional faculty in spite of the declining enrollment. This is true because the currently employed faculty cannot be immediately retrained or easily transferred among academic disciplines. While these situations create difficulties for formula budget analysis, they do not detract from the primary purpose of the zero-base formula concept. Unique short-run situations should be justified and funded on an individual institutional basis.

The zero-base formula approach focuses attention on all of the problem areas of institutional financing and forces hard questions to be asked. More conventional budgeting approaches are not usually as revealing.

The Zero-Base Formula

The focal point of a zero-base budget is the instruction program. The instructional cost components are more easily identified as having a direct relationship to student production indicies,i.e., F.T.E. Students, Student Credit Hours produced, etc. Each primary component shall be discussed separately.

ENROLLMENT & STUDENT CREDIT HOURS

Fiscal year full-time equivalent student enrollment was projected through Fiscal Year 1977 on the following assumptions:

1. That the tendency for a high school senior to go to a unit of the Montana University System will remain constant with the 1973-74 fiscal year.

2. That any recent student tendencies regarding institutional preference within the university system will hold constant after the 1974-75 fiscal year.

UNIT	1973-74	1974-74	1975-76	1976-77
University of Montana	8,362	8,139	8,050	8,008
Montana State University	8,174	8,029	7,746	7,719
Montana College of Mineral Science and Technology	683	651	584	538
Northern Montana College	1,067	980	867	817
Western Montana College	721	618	527	460
Eastern Montana College	2,815	2,558	2,210	2,038
TOTAL	21,822	20,975	19,984	19,580

The projected enrollments were compressed into student credit hours by level and by discipline as to better reflect the instructional program profile of the various institutions.

DETERMINATION OF FACULTY

Based upon comparative instructional cost data provided by other state studies, as well as the instructional cost data contained in the Budgetary and Fiscal Report of the Postsecondary Study Commission, certain disciplines were selected as special formula areas. (See Exhibit #1). The special formula areas were designed to provide added resources to those institutions which have a significant amount of their instructional activity near the top of the instructional cost spectrum. Those disciplines that were recognized as special formula areas had to be identified as commonly recognized high cost disciplines in other institutions of higher education in the United States.

Determining the number of full-time equivalent (F.T.E.) faculty who are required to carry out the projected student credit hour production is a key component to the formula used in this model. (See Exhibit #2). The average student credit hour production per F.T.E. faculty can be converted to equivalent student/faculty ratios or equivalent cost ratios by level of instruction for ready comparisons with institutions of other states.

FACULTY SALARY

Once the number of F.T.E. faculty has been determined, the next step was to determine the salary resources to be provided. The faculty salary component was based on the nature and type of the academic institution and its relationship to similar institutions in the Rocky Mountain Region. The two categories of institutions are: (1)

CATEGORY I - INSTITUTIONS: U of M, MSU, MCMST (Engineering only)

This category includes institutions offering doctoral degrees which conferred, in the most recent three years, an annual average of fifteen or more earned doctorates covering a minimum of three non-related disciplines.

CATEGORY IIA - INSTITUTIONS: EMC, WMC, MCMST, NMC

This category includes institutions awarding degrees above the baccalaureate, but not included in Category I.

The engineering faculty at Montana College of Mineral Science and Technology were provided with the Category I salary averages. This position was consistent with previous Board of Regents' policy pertaining to the engineering faculty at Montana Tech.

The salary projections for the Rocky Mountain Region were made through 1977. (See Exhibit #3). The Regents' goal will be to reach the average of the Rocky Mountain Region by the 1977-78 fiscal year using the following time schedule:

1975-1976 - 94% of the Rocky Mountain Average
1976-1977 - 97% of the Rocky Mountain Average
1977-1978 - 100% of the Rocky Mountain Average

The format illustrated on Exhibit 4 builds in the summer session component for faculty salaries and benefits based on the estimated projected number of student credit hours generated in the summer in relation to the number of student credit hours generated during the academic year. Although the summer sessions usually involve a greater proportion of graduate students, the formula is not weighted to reflect the greater graduate level production. This apparent shortcoming was justified on the assumption that an institution experiences some marginal cost efficiencies in utilizing the facilities during the summer--thus offsetting some of the fixed overhead costs which would otherwise have to be absorbed by the academic year operation.

INSTRUCTIONAL SUPPORT COSTS

Faculty salaries and benefits represent the major portion of the instructional program. Instructional support salaries and operation and capital expenditures were calculated using a financial ratio methodology. (See Exhibit #5). The ratios are varied between Category I - Institutions and Category IIA - Institutions. The larger, more complex universities require greater support costs within the program of instruction. However, the universities have historically been able to devote a greater percentage of their total budgets to instruction than their college counterparts and the formula expenditure percentage guidelines reflect this fact.

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(1) The categorical definitions have been adapted from the A.A.U.P. categories that have been used in compiling A.A.U.P. salary surveys.

Institutions that cannot operate their institutional support programs within the formula percentage constraints must justify the reasons why--i.e., idle capacity due to declining enrollments, etc.

The program summary sheets have been designed to reflect both the total budget request as per Regent formula, as well as the formula deficiency amounts that may be required for some institutions due to short-run difficulties. (See Exhibit #6).

NEW PROGRAMS

Any new academic programs shall be listed separately and not incorporated into the formula guideline presentation. The justification for new programs should include the impact on staffing, operations, and capital.

SUMMARY

As previously stated, there are many advantages in using the zero-base formula concept for determining the level of required financing for colleges and universities. Undoubtedly, student enrollment data, whether expressed by headcount, full-time equivalent, or student credit hours, cannot be totally ignored in the formula process. However, there exist some latent shortcomings in considering only "body count" statistics when speaking of the financial resources required for a given level of academic production.

Recent enrollment trends and projections reveal a leveling off of enrollments during the 1970's and quite possibly marked declines in the 1980's. As institutions attempt to forestall the enrollment declines via recruitment emphasis, promotion efforts, etc., there must be an incentive established for institutions to maintain quality academic standards. If the "warm body-count" is the only--or the most important--criterion in the determination and allocation of financial resources in higher education, much of the substance of higher education will be lost.

A budgeting process must incorporate formula components that instill a positive reaction on the part of institutional administrators and faculty to what can be defined as desirable educational outcomes. Unfortunately, academic excellence and program quality have been absent from nearly all formula budget criteria in higher education in the United States. Undoubtedly, this apparent oversight is due to the intangible nature of the educational product and the difficulty of measuring quality.

It is important to begin to develop indicies of academic excellence and program quality if the state views them as being desirable aspects of higher education and to incorporate such quality components into the budgeting process. The internal financial pressures created by declining enrollments are severe and leave no employee segment of an institution untouched. Such pressures could create a temptation on the part of administrators and faculty to pursue what, in the long run, may turn out to be negative educational outcomes that will not be in the best interest of the state or the society. One important way to reverse this possibility is to develop the proper incentives and motivate the institutions in a positive direction. The budgeting process is an important tool that can be used in accomplishing these types of educational goals. Such a course of action will require a great deal of human effort and financial commitment.

MONTANA UNIVERSITY SYSTEM
SCHEDULE OF FORMULA FUNDING BY ACADEMIC DISCIPLINE
FOR YEARS 1975 - 1977
CURRENT UNRESTRICTED FUNDS

----STANDARD FORMULA AREAS----	----SPECIAL FORMULA AREAS----			
All Institutions:	U of M	MSU	MCMST	NMC
1200 LIFE SCIENCES	Pharmacy	Nursing		
1300 M.C.P.E. SCIENCES	Computer Science	Engineering & Computer Science	Engineering	
1400 BEHAVIORAL SCIENCES				
1500 HUMANITIES	Drama Music Speech-Pathology	Music		
1600 PROFESSIONS	Journalism	Architecture		
1700 TECHNICAL VOCATIONS				Auto & Diesel (Transportation) Engineering & Industrial Arts Health-- Nursing
1800 PHYS. ED. & MIL. SCIENCE				

6-14-74

EXHIBIT #2

MONTANA UNIVERSITY SYSTEM
SCHEDULE OF FORMULAS FOR DETERMINING THE NUMBER OF FULL-TIME EQUIVALENT FACULTY
FOR YEARS 1975 - 1977
CURRENT UNRESTRICTED FUNDS

STANDARD FORMULA BY LEVEL - ACADEMIC YEAR (1)

Level	Student Credit Hours (AY)		No. of F.T.E. Faculty		Equivalent Student/Faculty Ratio		Cost Level Ratio to Lower Division
Lower Division	1,215	=	1	=	27/1	=	1.00
Upper Division	810	=	1	=	18/1	=	1.50
Graduate	336	=	1	=	9/1	=	3.00

SPECIAL FORMULA BY LEVEL - ACADEMIC YEAR

Level	Student Credit Hours (AY)		No. of F.T.E. Faculty		Equivalent Student/Faculty Ratio		Cost Level Ratio to Lower Division
Lower Division	810	=	1	=	18/1	=	1.00
Upper Division	540	=	1	=	12/1	=	1.50
Graduate	216	=	1	=	6/1	=	3.00

---

(1) Formula Based on Quarter Credit Hours--Multiply by .667 to Convert to Semester Basis.

6-18-7

EXHIBIT #3

FACULTY SALARY DETERMINATION

The following schedule represents the average faculty salary the state universities (Montana excluded) in the Rocky Mountain Region (1) on an academic year basis.

YEAR	AVERAGE SALARY	% INCREASE
1967-68	$11,169	.0 %
1968-69	12,099	8.3 %
1969-70	12,733	5.2 %
1970-71	13,621	7.0 %
1971-72	14,273	4.8 %
1972-73	14,856	4.1 %
1973-74	15,617	5.1 %
1974-75 Projected	16,520	5.8 %
1975-76 Projected	17,470	5.75 %
1976-77 Projected	18,475	5.75 %

The average increase for the past eight years was 5.75%. The average increase was used as the means to project salaries through 1977.

The faculty salary goal will be to reach the average of the Rocky Mountain Region by the 1977-78 fiscal year. The salary formula guideline for the next biennium will be applied as follows:

CATEGORY I - INSTITUTIONS: U of M, MSU, MCMST (Engineering Only)

1975-1976:
94% X $17,470 (Rocky Mountain Average) = $16,421

1976-1977:
97% X $18,475 (Rocky Mountain Average) = $17,920

CATEGORY IIA - INSTITUTIONS: EMC, NMC, WMC, MCMST

Historical salary surveys reveal that the average faculty salary of Category IIA - Institutions is approximately 90% of the average salary of the Category I - Institutions.

1975-1976:
90% X $16,421 = $14,778

1976-1977:
90% X $17,920 = $16,128

---

(1) States included are: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah and Wyoming.

8-5-74

EXHIBIT #4

UNIT ____________________

SCHEDULE OF TOTAL FACULTY SALARIES
FOR 1975 - 1977
CURRENT UNRESTRICTED FUNDS

---------------1975-1976---------------

STANDARD FORMULA FACULTY ________

SPECIAL FORMULA FACULTY ________

TOTAL ________

ADD:

a) One F.T.E. Academic Student Counseling Position for Each 20 F.T.E. Faculty ________

b) One F.T.E. Academic Administrative Position for Each 20 F.T.E. Faculty ________

TOTAL F.T.E. FACULTY ________

TOTAL FACULTY SALARIES

F.T.E. FACULTY X AVERAGE SALARY = TOTAL

________ X $________ = $________

ADD: FRINGE BENEFITS @ 12% ________

TOTAL AY FACULTY SALARY AND BENEFITS $________

SUMMER SESSION COMPONENT(1) ________

TOTAL FY FACULTY SALARY AND BENEFITS $________

---------------1976-1977---------------

STANDARD FORMULA FACULTY ________

SPECIAL FORMULA FACULTY ________

TOTAL ________

ADD:

a) One F.T.E. Academic Student Counseling Position for Each 20 F.T.E. Faculty ________

b) One F.T.E. Academic Administrative Position for Each 20 F.T.E. Faculty ________

TOTAL F.T.E. FACULTY ________

TOTAL FACULTY SALARIES

F.T.E. FACULTY X AVERAGE SALARY = TOTAL

________ X $________ = $________

ADD: FRINGE BENEFITS @ 12% ________

TOTAL AY FACULTY SALARY AND BENEFITS $________

SUMMER SESSION COMPONENT(1) ________

TOTAL FY FACULTY SALARY AND BENEFITS $________

(1) SUMMER SESSION COMPONENT:

$\frac{\text{Summer Session SCH}}{\text{Academic Year SCH}}$ = ________% X AY Faculty Salary & Benefits = Summer Session Componer

1975-1976 ________% X ________ = ________ Summer Session Component

1976-1977 ________% X ________ = ________ Summer Session Component

6-18-74

UNIT____________________ EXHIBIT #5

SCHEDULE OF FORMULA PROGRAM COST WORKSHEETS
FOR 1975 - 1977
CURRENT UNRESTRICTED FUNDS

FORMULA FOR DETERMINING INSTRUCTION BUDGET:

CATEGORY I - INSTITUTIONS: U of M, MSU

	1975-1976		1976-1977	
Total Faculty Salaries & Benefits	$	78-83%	$	78-83%
Other Salaries & Wages & Benefits		10-13%		10-13%
Operation & Capital		7-10%		7-10%
TOTAL INSTRUCTION PROGRAM	$	100%	$	100%

CATEGORY IIA - INSTITUTIONS: EMC, WMC, MCMST, NMC

	1975-1976		1976-1977	
Total Faculty Salaries	$	80-85%	$	80-85%
Other Salaries & Wages		6- 9%		6- 9%
Operation & Capital		10-11%		10-11%
TOTAL INSTRUCTION PROGRAM	$	100%	$	100%

FORMULA FOR DETERMINING OTHER INSTRUCTION RELATED PROGRAMS:

CATEGORY I - INSTITUTIONS:

	1975-1976		1976-1977	
Instruction	$	60-65%	$	60-65%
Organized Research		2- 3%		2- 3%
Public Service		0- 1%		0- 1%
Academic Support		9-11%		9-11%
Student Service		4- 6%		4- 6%
Institutional Support		5- 7%		5- 7%
Operation & Maintenance of Plant		11-13%		11-13%
SUB-TOTAL		100%		100%
Scholarships & Fellowships		(1)		(1)
TOTAL	$		$	

CATEGORY IIA - INSTITUTIONS:

	1975-1976		1976-1977	
Instruction	$	53-58%	$	53-58%
Organized Research		2- 3%(2)		2- 3%(2)
Public Service		0- 1%		0- 1%
Academic Support		9-12%		9-12%
Student Service		4- 6%		4- 6%
Institutional Support		6-10%		6-10%
Operation & Maintenance of Plant		13-18%		13-18%
SUB-TOTAL		100%		100%
Scholarships & Fellowships		(1)		(1)
TOTAL	$		$	

(1) Scholarships & Fellowships Awards must comply with Regent Board Policy
(2) Applies only to Montana College of Mineral Science & Technology(Excludes Bureau)

NOTE: Any drop in the percentage of instruction expenditures greater than 2% over the previous years will have to be justified--i.e., decreased enrollment, etc.

8-5-74

APPENDIX C

University Budget Programs

The university units account for expenditures of current unrestricted funds through eight budget programs. These programs generally relate to different functional operations of the unit. The fiscal 1979-80 breakdown of current unrestricted appropriations allocated by the units to each of these programs is:

Program	Budgeted[1] FY '79-80	Percent of[1] Total '79-80
Instruction	$36,906,103	55.3
Research	765,668	1.2
Public Service	208,456	.3
Academic Support	7,110,247	11.0
Student Services	5,659,339	8.7
Institutional Support	6,641,515	10.2
Operation & Maintenance of Plant	7,120,937	11.0
Scholarship & Fellowship	1,505,210	2.3
Total	$64,917,475	100.0

[1] Excludes Agricultural Experiment Station, Cooperative Extension Service, Bureau of Mines, Commissioner's Office, Board of Regents, Forestry Experiment Station, Includes only current unrestricted funds.

Current unrestricted funds are those appropriated by the Legislature for general operating expenditures of the university or college.

Instruction program includes faculty salaries and departmental operating expenses of instructional departments. Over ninety percent of instruction program expenses are personal services for faculty, graduate assistants and classified support staff.

Research program covers organized research efforts. This includes centers and institutes like the Bureau of Business and Economic Research, Agricultural and Forestry Experiment Stations, and MSU's institute of applied research. In the previous table, the amounts for Agricultural and

Forestry Experiment Stations were excluded. Only MSU and UM have state funded research programs in fiscal 1980.

Public service programs record expenditures like the Montana Repertory Theater, some campus radio stations, cooperative extension service and university community service programs.

Academic support represents the costs of academic vice president, deans of schools and colleges, and the library. Libraries account for approximately 40 percent of academic support program budgets in 1979-80. Also included in academic support are amounts for faculty development and sabbaticals.

Student services include the registration and admission offices, financial aid offices, placement offices, testing and counseling services, intercollegiate athletics programs and intramurals.

Institutional support programs account for the presidents' offices, business and chief financial offices, personnel offices, central mail and telephone services and publications or media services. Campus security is also in this areas as are alumni offices.

Operation and maintenance of plant programs provide for the cost of maintaining physical facilities at the campuses. This covers such items as building and grounds maintenance, custodial services and utilities.

APPENDIX D

High Cost Programs at Montana University System Units
(Identified through interviews with students, faculty and administrators on respective campuses.)

MCMST

- Petroleum Engineering
- Mining Engineering
- Environmental Engineering
- Computer Science
- Laboratory Sciences
- Graduate Programs

WMC

- Music
- Art
- Sports Medicine

NMC

- Nursing
- Diesel Mechanics
- Agricultural Mechanics
- Business
- Welding
- Auto Body
- Metal Technology
- Electronic Technology

MSU

- Nursing
- Engineering
- Engineering Technolocy
- Agriculture
- English
- Science
- Art
- Music

EMC

- Business
- Special Education

UM

- Graduate Programs
- Pharmacy
- Sciences
- Music (Performance)
- Foreign Language
- English
- Communication Sciences & Disorders
- Drama (Performance)
- Journalism
- Business
- Forestry
- Biology
- Botany
- Art
- Fine Arts
- Religious-Studies

APPENDIX E

Problems with National Comparative Statistics

A report by M. M. Chambers, printed in the Chronical of Higher Education[1] shows Montana ranked 26th nationally in fiscal 1980 appropriations per $1,000 personal income and above the national average by two percent. This is a measurement of state support relative to its ability to pay.

Appropriation per FTE student indicates a state's support relative to a measure of its work load (i.e. full-time equivalent students). A recent study by the national institute of education[2] shows Montana 36th nationally in state and local appropriations per FTE student in fiscal 1978 and nearly 14 percent below the national average. Commissioner Richardson quoted a study[3] showing Montana 44th in state and local appropriations per equivalent full-time student for higher education in fiscal 1979 and 20 percent below the national average.

This national information, because of its convenience, is often used for comparisons. However, it is also often inappropriately used. When the information is not used carefully or not understood, results can be misleading. The information often contains errors or inconsistencies. The scope or content of the information often limits its usefulness for certain comparisons.

Errors or Inconsistencies in Reporting

Most national information is collected from units of higher education directly or through state coordinating offices. With thousands of higher education units and fifty states reporting, the most carefully designed reports can contain errors or inconsistent data. A Specific example from the Chronicle of Higher Education Report[1] illustrates. In this report the figures for state appropriations per $1,000 of personal income were based on tax revenues appropriated by the states for operating expenses of higher education. It included appropriations of state aid to local public community colleges and vocational-technical schools, higher education agencies (commissioner's office) , colleges and universities, student grants and loans, and indirect support of private institutions through scholarships or other programs. In the reporting of Montana data for this report, aid to vocational-technical education of $3.6 million in fiscal year 1980 was not included. This resulted in Montana showing lower levels than should be reported if consistant reporting had been carried out.

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[1] The Chronical of Higher Eduation, October 9, 1979.

[2] U.S. Department of Health, Education and Welfare, National Institute of Education, Higher Education Financing in the Fifty States, September 1979.

[3] State of Washington, Council for Postsecondary Education, Financial Support of Higher Education in Washington 1978-79 a National Comparison, May 1979.

Another example of inconsistencies or errors is found in the National Institution of Education Study[2] which reports state and local appropriation per FTE student. In the 1976 portion of this study, funds from the six mill levy are omitted as well as distribution of the $4 million Regents' discretionary fund. Both of these tend to show Montana's level of support as lower than actual.

Limitation of Data's Usefulness Based on Its Scope

If national comparative data is to be used to determine Montana's relative level of support for the six units of the university system, its scope must be comparable to that task. It makes little sense to talk of comparing state support for the university system and use information for comparing that includes vocational education, community colleges, medical schools, and private schools. The expenditure data per thousand dollars of per capita income reported in the Chronicle of Higher Education includes state aid to community and junior colleges, vocational schools, and private institutions. Use of this comparative data would be misleading. Montana's rank of 26th when all appropriations are considered may be different if only support of the six units were looked at. To illustrate, California and Montana are compared.

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[1] The Chronicle of Higher Education.

[2] U.S. Department of Health, Education and Welfare, Higher Education Financing.

In support per $1,000 of personal income, California is ranked 12th and Montana 26th. However, California has an extensive system of community colleges for which the state has a policy of supporting low tuition levels.[1] When state appropations for community colleges are eliminated from the comparison for both Montana and California, Montana's expenditures per $1,000 of personal income exceeds California's.

This type of problem exists with the appropations per FTE student data as well. For example, the Washington state study[2] cited by Commissioner Richardson reports appropriations per equivalent full-time student. The appropriations referred to in the report includes local appropriations as well as state. It also includes states with medical schools. It includes states with extensive junior college systems like California and states that have differing shares of college costs borne by the student. The inclusion of medical schools alone significantly changes the data's usefulness for comparative purposes. It is calculated that major doctoral granting institutions without medical schools receive 80 percent of the state and local appropriations of similar institutions with medical schools. It is interesting to note that Montana's state and local appropriations per student was the median of nine states in the continental United States that did not have public medical schools[7].

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[1] The NIE study places California's state and local support of two-year colleges per student at 118 percent of the national average and tuition support per student at 13 percent of the national average. In Montana state and local support is 90 percent of the national average and tuition support per student is 78 percent of the national average. Both had education and general revenues of 96 percent of the national average.

[2] Council on Postsecondary Education, Financial Support for Higher Education.

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[1] National Institute of Education, Higher Education Financing in the Fifty States.

APPENDIX F

STATE OF MONTANA

Office of the Legislative Fiscal Analyst

STATE CAPITOL
HELENA, MONTANA 59601
406/449-2986

HN D. LaFAVER
ISLATIVE FISCAL ANALYST

We are reviewing the state funding of colleges and universities in Montana. A major segment of this review is comparing workloads and expenditures of peer institutions. We have selected your institution as such a peer. The attached questions are designed to obtain needed comparative information. If you have an instructional cost study by discipline or other reports that provide any of this information, the report will serve in lieu of filling out those parts of the questionnaire.

We are gathering similar data on units of the Montana University System. We will gladly share this information with you. Please check the Montana unit for which you would like to receive data.

___Eastern Montana College
___Northern Montana College
___Western Montana College
___Montana State University
___University of Montana
___Montana College of Mineral Science & Technology

Please call Curt Nichols (406-449-2986) or Jack Noble (406-449-3024) if you have any questions.

John A. Richardson
Commissioner of Higher Education

John D. LaFaver
Legislative Fiscal Analyst

CN:jn

PEER INSTITUTION QUESTIONNAIRE

INSTITUTION____

I. ENROLLMENT (1978-79)

1. Does your campus report on a:

    Quarter basis __________

    Semester basis__________

2. How many credit hours determine an FTE student:

    Undergraduate ______________

    Graduate ______________

3. What is your FTE enrollment?:

    Academic year undergraduate ____________

    Academic year graduate ____________

    Summer session undergraduate____________

    Summer session graduate________________

4. What is your enrollment by HEGIS discipline?

    These figures do ______ do not ______ include summer session.

    (You may answer on following page or send your own report)

	Student Credit Hours					
Discipline Groups	Lower Division	Upper Division	Graduate	or	FTE Enrollment	FTE Faculty
1. Agriculture & Natural Resources (0100)						
2. Architecture & Environmental Design (0200)						
3. Area Studies (0300)						
4. Biological Sciences (0400)						
5. Business & Management (0500)						
6. Communications (0600)						
7. Computer & Information Sciences (0700)						
8. Education (0800)						
9. Engineering (0900)						
10. Fine & Applied Arts (1000)						
11. Foreign Language (1100)						
12. Health Professions (1200)						
13. Home Economics (1300)						
14. Law (1400)						
15. Letters (1500)						
16. Library Science (1600)						
17. Mathematics (1700)						
18. Military Science (1800)						
19. Physical Science (1900)						
20. Psychology (2000)						
21. Public Affairs & Services (2100)						
22. Social Sciences (2200)						
23. Theology (2300)						
49. Interdisciplinary (4900)						
50. Technologies (5000)						

II. INSTITUTIONAL EXPENDITURES AND FINANCING:

1. Does your institution follow the generally accepted accounting principles, fund groups and program expenditure definitions recommended by NACUBO and the AICPA?

   Yes ________ No ________

2. If the answer to question No. 1 is no, what are major exceptions to the NACUBO guidelines?

3. Did your institution produce an annual audited financial report for 1978-79?

   Yes ________ No ________

4. What are your current unrestricted operating expenditures for the 1978-79 fiscal year for the following programs? (Do not include extension services, experiment stations, or auxiliary services nor expenditures from restricted or designated revenues).

Current Unrestricted Expenditures 1978-79

Program	Services	Operation	Equipment Or Capital	Total
Instruction				
Research				
Public Service				
Academic Support				
Library, Included Above				
Student Services				
Intercollegiate Athletics, Included Above				
Institutional Support				
Op. and Maint. of Plant				
Scholarships and Fellowships[1]				
Other				
TOTAL UNRESTRICTED				

Current Unrestricted Revenues 1978-79

Financing	Rate	Total
State Appropriation		
Student Tuition:		
Resident		
Non-Resident		
Other		
Total Tuition and Fees		
Indirect Cost Recoveries		
Other		
Scholarships and Fellowships[2]		
TOTAL FINANCING		

[1] Includes grant awards (cash outlays) and fee waivers.

[2] Includes only the fee waiver portion of the program expenditure. Amounts are offsetting if total scholarship and fellowships is comprised of fee waivers.

III. EXPENDITURE BY DISCIPLINES: In the colleges, schools or departments for which you have separate accounting, what amounts were spent in 1978-1979 in these categories?

School, College or Department	FTE Students or Credit Hours	Two Digit HEGIS Codes Included	SALARIES			Employee Benefits	Operating Expenses	Equipment
			Professional Faculty	Graduate Assistants	Other			
[1]Earth Science	14,000	19, 22	$357,000	$26,920	$41,200	$57,400	$73,000	$8,000

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[1] Illustrates sample response, HEGIS codes are found in question 4; in this sample Earth Science department has offered courses in physical sciences (19) and geography, a social sciences (22). If you have departmental expenditure reports, copies of these would serve in lieu of filling out this form.

APPENDIX G

THE MONTANA UNIVERSITY SYSTEM
33 SOUTH LAST CHANCE GULCH
HELENA, MONTANA
59601

OMMISSIONER OF HIGHER EDUCATION

November 28, 1979

To: Formula Budget Taskforce

From: Jack Noble, Deputy Commissioner
for Management and Fiscal Affairs

Subject: Instructional Cost Inventory — Final Draft

Attached are two sets of instructions and forms that are to be used in conducting the instructional cost inventory on your campuses. The following target deadlines are applicable:

NMC, WMC, Tech.:	February 1
EMC:	February 10
UM, MSU:	March 1

Each campus should begin the effort immediately. Periodic progress reports will be required so that the technical problems can be resolved. Campuses intending to combine more than one discipline for the purpose of program costing must have prior concurrence from the Commissioner's Office. All questions regarding the methodology should be referred to me.

ale

Attachments

E MONTANA UNIVERSITY SYSTEM CONSISTS OF THE UNIVERSITY OF MONTANA AT MISSOULA, MONTANA STATE UNIVERSITY AT BOZEMAN, MONTANA COLLEGE OF MINERAL SCIENCE AND TECHNOLOGY AT BUTTE, WESTERN MONTANA COLLEGE AT DILLON, EASTERN MONTANA COLLEGE AT BILLINGS AND NORTHERN MONTANA COLLEGE AT HAVRE.

Comments

FORM CHE-FBT1

1) The cost study will use HEGIS disciplines as the cost base. Some campuses may have individual faculty who teach in more than one HEGIS discipline. The faculty salary should be allocated between disciplines on the basis of credit hours taught prior to allocating the faculty salary by level within the disciplines.

   In some cases, it may be permissible to combine two or more disciplines and apply an "average cost" concept. Materiality and the instructional nature of the disciplines will determine whether the alternative approach is permissible.

2) Only unrestricted credit-hour production will be used. This will require a reconciliation with total student credit hours reported on the OCHE forms. The definitions in the registrars' manual apply to all enrollment-related data.

3) The law school and Montana Tech shall use a semester-credit-hours basis for program costing. All final cost summaries shall be footnoted as follows:

   *These costs are computed on a semester basis and may be converted to a quarter basis by multiplying them by a conversion factor of 0.667.

4) The designated member of the Taskforce is responsible for the accuracy of all documents.

CHE-FBT1

MONTANA UNIVERSITY SYSTEM

– FORMULA BUDGET STUDY –

Indices of Instructional Production
by Discipline

nit ▶		Academic Discipline ▶	

I. DEGREES AWARDED

Graduation Years ▶	1976	1977	1978	1979
lon-Degree Certificates				
ssociate Degrees				
achelors Degrees				
lasters Degrees				
irst Professional Degrees				
octoral Degrees				
OTALS				

II. FISCAL-YEAR FULL-TIME EQUIVALENT (FY FTE) STUDENTS

Fiscal Years ▶	1975-76	1976-77	1977-78	1978-79
Y FTE Students				

III. STUDENT CREDIT HOURS

Quarter or Semester	Lower Division[1/]	Upper Division[2/]	Graduate[3/]	TOTALS
978 Summer				
978 Autumn				
979 Winter				
979 Spring				
OTALS				

IV. FTE INSTRUCTIONAL FACULTY[4/]

Academic Year	Lower Division	Upper Division	Graduate	TOTAL
978-79				

V. STUDENT/FACULTY RATIO

Academic Year	Lower Division	Upper Division	Graduate	TOTAL
978-79				

VI. AVERAGE CLASS SIZE BY COURSE LEVEL

Academic Year	Lower Division	Upper Division	Graduate	TOTAL
978-79				

Course series 100-200. [2/] Course series 300-400. [3/] Course series 500 600. [4/] Form CHE-FBT4

MONTANA UNIVERSITY SYSTEM

Formula Budget Study

Comments

FORM CHE-FBT2

1) A form must be completed for each faculty member budgeted within the program of instruction, including department chairmen. Part-time or adjunct faculty (less than .50 FTE) may be aggregated on one form. The FTE for part-time faculty shall be based on the following faculty salary averages included in HB145 (less insurance):

UM = 1.00 for every $19,432 of salary dollars
MSU = " " " $19,432 " " " " "
EMC = " " " $17,489 " " " " "
WMC = " " " $17,489 " " " " "
NMC = " " " $17,489 " " " " "
Tech = " " " $18,363 " " " " "

2) Salary costs will be allocated to course level based on the credit hours taught. For example, if a faculty member teaches a total of 30 credit hours in an academic year; 10 lower division, 10 upper division, and 10 graduate; the faculty member's salary shall be prorated 33.33% to each level.

3) Instruction FTE shall be allocated on the same basis as salary.

4) The academic-year assignment cannot be greater than 1.00 FTE.

   The total AY or FY salary expenditures should agree with the unit's financial records.

   The courses taught should be listed in the same sequence that they were taught, beginning with summer session of 1978.

   The following conversion factors should be used to equate faculty involved in independent-study courses with regular credit-hour instruction:

   a) Student teaching: Divide student credit hours by 12 to obtain equivalent credits taught.

   b) Other independent course work or thesis direction: Divide student credit hours by 6 to obtain equivalent credits taught.

5) The salaries of faculty members who were budgeted within the instruction program but did not have instructional teaching duties during the 1978-79 fiscal year should be prorated on the basis of student credit hours by level produced within the discipline for which the faculty member is budgeted.

CHE-FBT2

MONTANA UNIVERSITY SYSTEM

– FORMULA BUDGET STUDY –

Faculty Cost Allocation Worksheet

Unit ▶		Academic Discipline ▶	
Employee Name ▶		Rank ▶	

I. DISTRIBUTION OF SERVICE

Area of Service ▶	A Instruction and Department Research		B Organized Research		C Public Service and Other		D TOTALS	
	Salary	FTE	Salary	FTE	Salary	FTE	Salary[1]	FTE[2]
AY 1978-79								
Summer 1978								
TOTALS								

II. INSTRUCTIONAL LOAD

Course Number	Course Title	Credit Hours	Student Enrollment	Student Credit Hours	Quarter or Semester Taught

III. DIRECT INSTRUCTIONAL FACULTY SALARY COST

Level of Instruction	Credit Hours	Percent of Total	Prorated FTE by Level	Prorated Instructional Cost by Level
Lower Division				
Upper Division				
Graduate				
TOTALS		100.0%	[3]	[4]

[1] Maximums of 1.00 academic-year FTE and 0.22 summer-session FTE.

[2] Figure for summer-session salary will represent additional instructional summer-session compensation.

[3] This total should agree with the FTE total in Part I, Column A.

[4] This total should agree with the salary total in Part I, Column A.

MONTANA UNIVERSITY SYSTEM

Formula Budget Study

Comments

FORM CHE-FBT3

1) Graduate assistants may be aggregated on one form for the purpose of allocating cost by level.

2) Graduate assistants who are totally responsible for a course should be charged with the credit-hour production (Part II. Instructional Production Summary, "Credit Hours" column).

3) Graduate assistants who handle only the labs and not the lectures should be credited with lab hours only.

4) The graduate assistant salary cost shall be prorated on the basis of "imputed credit hours" where every two hours of instruction will equal one "imputed credit hour." Actual credit hours will convert to "imputed credit hours" on a one-for-one basis.

CHE-FBT3

MONTANA UNIVERSITY SYSTEM

– FORMULA BUDGET STUDY –

Graduate Assistant Summary

nit ▶		Academic Discipline ▶	

I. GRADUATE ASSISTANT DATA

A Total Number of Graduate Assistants	Percentage Assignment			E TOTAL Salaries Paid
	B Instruction	C Research	D Other	

Column E ÷ $12,000 = Total FTE Graduate Assistants	
Column B X Line F = Total FTE Graduate Assistants Assigned to Instruction	
Line G X $12,000 = Total Dollar Amount Assigned to Instruction	

II. INSTRUCTIONAL PRODUCTION SUMMARY

Level of Instruction	Lab Hours	Credit Hours	Imputed Credit Hours	Student Credit Hours	% Imputed Credit Hours	Prorated Cost	Prorated FTE
ower Division							
pper Division							
raduate							
OTALS					100.0%		

MONTANA UNIVERSITY SYSTEM

Formula Budget Study

Comments

FORM CHE-FBT4

1) This form is to recap the faculty cost allocations of the CHE-FBT2 and CHE-FBT3 forms.

2) The sum total of the FTE columns should be used in the calculation of the student/faculty ratio by level of the CHE-FBT1 form.

CHE-FBT4

MONTANA UNIVERSITY SYSTEM
– FORMULA BUDGET STUDY –
Cost Compiler Worksheet
Summary of Faculty Salary Cost

nit ▶		Academic Discipline ▶		

PRORATED FACULTY SALARY BY LEVEL OF INSTRUCTION

Employee Names	Lower Division		Upper Division		Graduate		TOTALS	
	Salary	FTE	Salary	FTE	Salary	FTE	Salary	FTE
art-Time Aggregate								
otals, Regular Faculty								
dd: Graduate Assistant Figures (CHE-FBT3)								
NSTRUCTION TOTALS								

MONTANA UNIVERSITY SYSTEM

Formula Budget Study

Comments

FORM CHE-FBT5

1) Part I of this form is a restatement from portions of forms CHE-FBT1 and CHE-FBT4. These sections are restated because they will be used as a base to allocate joint instructional costs by level.

2) Where the academic discipline is synonymous with a budgeted academic department, the "TOTAL Cost" in column four (Part II) should agree with the total expenditure of the department. If more than one discipline exists within one budgeted academic department, the sum of the total costs for each discipline should equate with the total expenditures of the department.

CHE-FBT5

MONTANA UNIVERSITY SYSTEM
– FORMULA BUDGET STUDY –
Cost Compiler Worksheet
Direct Instructional Cost by Course Level

nit ▶		Academic Discipline ▶	

I. DISTRIBUTION OF ACTIVITY BY LEVEL OF INSTRUCTION

Level of Instruction	Student Credit Hours[1]		FTE Faculty[2]	
	Hours by Level	Percent	FTE Faculty by Level	Percent
ower Division				
pper Division				
raduate				
OTALS		100.0%		100.0%

II. COST PER OBJECT BY LEVEL OF INSTRUCTION

Object	Lower Division	Upper Division	Graduate	TOTAL Cost	Allocation Method[3]
Faculty Salaries					1
Graduate Assistant Salaries					1
Classified and Other					2
TOTAL Salaries					
Employee Benefits					3
OTAL Personal Services					
ontracted Services					2
pplies and Materials					2
mmunications					4
ravel					4
ent					2
tilities					2
epairs and Maintenance					2
pital					2
TAL COST BY LEVEL					
ST PER STUDENT CREDIT HOUR					

---

[1] orm CHE-FBT1

[2] Form CHE-FBT4

[3] Methods of allocation listed are as follows:
1. Credit Hours Taught (Form CHE-FBT4)
2. Student Credit Hours
3. Total Salaries
4. FTE Faculty

APPENDIX H

Part-Time Student Adjustment

To avoid the problems of having to separate registration and admission office expenditures from other support programs, an adjustment for part-time students should be based on an expenditure which we would be calculating separately. A possible method would be to relate cost to the faculty salary pool, (which is based on FTE students). The adjustment could then be an amount that reflects the excess of headcount over FTE enrollment. For example: Currently, for the entire university system, registration and admission offices cost an amount equal to about 6.5 percent of faculty salaries. An adjustment that reflects headcount of five percent greater than FTE would be calculated by adding five percent of the 6.5 percent of faculty salaries. This could be simplified because five percent of 6.5 percent is approximately equal to one-third of one percent. Therefore, an adjustment like the following would get the job done;

Headcount Adjustment = 1/3 of 1% of faculty salaries for each 5% by which headcount enrollment exceeds FTE enrollment.

Under this formula a headcount of 100 percent in excess of FTE would generate an amount equal to 6.6 percent of faculty salaries.[1] If headcount were equal to or within five percent of FTE, no adjustment would be added. If headcount were 50 percent larger than FTE a unit would receive 3.3 percent of faculty salaries or approximately a 50 percent increase in the 6.5 percent currently spent on registration and admission offices.

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[1] $\frac{100\%}{5\%} = 20$, then 20 X 1/2 = 6.6%

APPENDIX I

Draft of Contingency Appropriation

There is appropriated to the office of budget and program planning from the general fund for the purpose of funding underestimated enrollment at units of the Montana university system $500,000 in fiscal year 1982 and $1,000,000 in fiscal year 1983. Any unused funds revert at the end of the fiscal year. If calculated allocations exceed appropriations, the amounts shall be reduced by the same percentage at all schools receiving an allocation.

	Projected Enrollment[1]			Transition Adjustment		Net Variable Cost	
	1981	1982	1983	1982	1983	1982	1983
MSU	9,684	9,800	9,700	-0-	28	2,388	2,603
UM	7,906	7,650	7,250	205	352	2,354	2,566
EMC	2,926	2,800	2,650	97	142	2,370	2,583
WMC	691	660	600	23	50	2,969	3,236
NMC	1,218	1,150	1,090	51	63	2,505	2,730
MCMST	1,230	1,350	1,300	-0-	-0-	2,540	2,769

[1] These figures are for illustrative purposes only and do not represent actual projections.

The budget director shall calculate the 1982 contingency allocation for each school as follows:

1. Substract projected 1981 enrollment from actual 1981 enrollment. If the number is greater than zero,

2. subtract from it the transitional adjustment for 1982. If the number is greater than zero,

3. multiply it by the net variable cost for 1982.

The budget director shall calculate the 1983 contingency allocation for each school as follows:

1. subtract the projected 1982 enrollment from actual 1982 enrollment. If the number is greater than zero,

2. subtract from it the transitional adjustment for 1983. If the number is greater than zero,

3. multiply it by the net variable cost for 1983.

APPENDIX J

The Big Sky Country

MONTANA STATE HOUSE OF REPRESENTATIVES

REP. GENE DONALDSON
HOUSE DIST. 29
3890 HELBERG DR.
HELENA, MONT. 59601
PH. 227-5846

January 12, 1980

John Richardson, Commissioner
Commissioner of Higher Education
33 South Last Chance Gulch
Helena, MT 59620

Dear Commissioner Richardson:

Application of the formula concepts adopted by the legislative finance committee has generated the listed amount for each campus of the university system. The finance committee recommended the individual campuses be allowed to determine how these funds would be distributed. This allows you to achieve the best performance from the funds provided. In keeping with that recommendation we request you to prepare and submit a budget allocating the amount shown. The subcommittee recognizes these allocations may be revised some in light of unanticipated circumstances arising between presentation to the subcommittee and adoption by the board of regents. However, granting such unforeseen circumstances, the allocations should as accurately as possible reflect planned usage of the funds. This will allow us to review the formula generated budget in relation to executive and regents budget request and determine the appropriate level of funding.

Formula Generated
Current Unrestricted Amount

Unit	Fiscal 1982	Fiscal 1983
MSU	$35,833,490	$38,792,845
UM	29,919,685	32,620,629
EMC	10,284,479	11,110,267
NMC	4,932,770	5,385,311
WMC	2,632,015	2,866,785
MCMST	6,053,416	6,695,208

These amounts do not include funds to be allocated to each campus for added repair and maintenance.

These budget submittals should specify budgeted expenditures for each of the following programs for each year of the coming biennium. For each program list the anticipated number of FTE employees and the breakdown of expenditures between personal services and operating expenses.

Instruction
Research
Public Service
Academic Support
Student Services
Institutional Support
Operation and Maintenance of Physical Plant
Scholarships and Fellowships (Remember mandatory fee waivers under this formula will be handled thru the commissioner's office.)

In addition to the above, list your planned expenditure for libraries and, separately, library acquisitions and intercollegiate athletics. Please include a brief narrative summary for each program discussing the major additions above the level funded in the current biennium.

The amounts for each campus are based upon salaries being increased nine percent each year of the biennium. In addition, instructional faculty receive an adjustment to bring them to the level of their peers. The pay increase is subject to action by the legislature and therefore adjustments may have to be made later.

Please indicate the approximate number of FTE instructional faculty and graduate teaching assistants you would have.

This information should be provided no later than Monday, February 2, to allow us and our staff time to review it before hearings. We also request that the allocation of added repair and maintenance funds be submitted the same time. Thank you for your cooperation.

Sincerely,

Gene Donaldson

Gene Donaldson, Chairman
Education Subcommittee

CN:ve:z

APPENDIX K

The Big Sky Country

MONTANA STATE SENATE

SENATOR MATT HIMSL
DISTRICT NO 9 FLATHEAD COUNTY
305 4TH AVE E
KALISPELL MONTANA 59901

COMMITTEES:
FINANCE & CLAIMS CHAIRMAN
PUBLIC HEALTH

April 3, 1981

Mr. Ted James, Chairman
Board of Regents
Post Office Box 2885
Great Falls, MT. 59403

Dear Mr. James:

It is the intent of the senate finance and claims and house appropriations committee that the university do long range planning for enrollment fluctuations. At present full-time equivalent student enrollment at the six colleges and universities is anticipated to fall 25 percent before stabilizing in fiscal 1988. Application of the funding methods developed by the legislative finance committee and used by the 1981 legislature would require spending reductions from the fiscal 1983 appropriation of approximately 20 percent before considering inflation. The commissioner of higher education should prepare a plan to accomplish these reductions. The plan should detail anticipated problems and propose solutions including any needed revision of state statutes. Particular attention should be given to procedures for academic program termination or consolidation and related issues. Please submit the plan by September 1, 1982 to the legislative finance committee.

Your cooperation on this matter is appreciated. This pre-planning should facilitate the appropriation process when enrollment declines materialize.

Sincerely,

Senator Matt Himsl, Chairman
Senate Finance and Claims Committee

CMN:ve:m6
cc: John Richardson
Commissioner of Higher Education

GLOSSARY

Academic Year: Fall, winter, and spring quarters of the school calendar; it does not include summer quarter.

Faculty Productivity: The ratio that expresses the number of student credit hours instructed by one FTE faculty assigned fully to instruction.

Full-Time Equivalent (FTE) Faculty: A 1.00 FTE faculty represents a faculty member whose salary is assigned to the program of instruction, research, or public service for the entire academic year (unrestricted only).

Full Time Equivalent (FTE) Student: One FTE student is a measure that represents 45 quarter credit hours or 30 semester credit hours of undergraduate level studies in a year or 36 quarter credit hours or 24 semester credit hours of graduate level studies in a year.

Headcount: An unduplicated count of people taking credit courses.

HEGIS: Higher Education General Information Survey conducted annually by the U.S. Department of Education.

Level: The level of comprehension acquired of students who undertake an instructional offering. The levels are commonly listed as:

Undergraduate Lower Division - freshman, sophomore
Undergraduate Upper Division - junior, senior
Graduate - post baccalaureate

Student Credit Hour: A measure equal to one student being enrolled in a course offering one credit.

Student-Faculty Ratio: A ratio that illustrates the number of full-time equivalent students per full-time equivalent instructional faculty.

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